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The Universal Problem and its Solution

The journal of the International Chamber of Commerce, *World Trade*, for January contains the report of a speech by the President, Mr. F. H. Fentener van Vlissingen, delivered in Paris last month. The keynote of Mr. Fentener van Vlissingen's remarks was the blessing of the enlarged productive capacity of the world to-day, which should provide a much needed antidote to those who would restrict production rather than let it expand normally. "We do not properly appreciate the great blessing which modern productive capacity really represents. In fact some people sometimes talk as if to produce goods and food in large quantities were a kind of sin. Nevertheless, increased production provides the only possibility of increasing the general welfare." To these words he added that it was illogical, even tragic, to have great stocks of goods and not be able to use them, which is the position at present. There was something wrong, he said, with our machinery of distribution, but he was hopeful that it would eventually be put right. So far, however, neither the International Chamber of Commerce, nor any other authoritative body of the sort, has put forward any really constructive suggestion, and in this connection we draw attention to a letter published on page 90 announcing the formation of an economic study group set up by a number of engineers who are determined to analyse the trouble to the bottom and from the analysis so made to formulate proposals for amending the distributive machinery, the material of which, of course, is money.

Important Developments in Ulster

Last Wednesday the Governor of Northern Ireland inaugurated an important development in the transport facilities of Ulster by opening the new Greenisland loop line of the L.M.S. Northern Counties Committee, whereby trains are now enabled to run direct between Belfast and the north without the reversal hitherto necessary. This will result in a saving of engine power and in more economical working, besides making possible the acceleration of train services. The new line will be brought into regular use next Monday and, despite the fact that slow running will be necessary over its $2\frac{3}{4}$-mile length for some time, the new timetables show cuts in the Belfast-Portrush and Belfast-Londonderry schedules of as much as 15 minutes. By June, when the summer services come into operation, the line will be consolidated and, in addition, the crossing loops on the single-line section north of Ballymena will have been re-aligned and re-signalled so that non-stop trains will have a straight run through without speed restriction. These factors, together with the recent introduction of new 2-6-0 locomotives, will make further accelerations possible, and the $65\frac{1}{4}$ miles that separate Belfast and Portrush will be covered in 80 minutes. What with these improvements, and new corridor carriages and buffet cars now being built, railway travelling on the main lines of the N.C.C. will have been thoroughly modernised. A description of the opening ceremonies will be found on page 112.

The Week's Traffics

In the traffic returns of the four group companies for the past week the principal features are the large increase in merchandise earnings on the London Midland & Scottish and London & North Eastern Railways and the generally satisfactory advance in coal class receipts. For the first two weeks of the year all four companies record increases in these two classes of traffic, general merchandise showing an advance of £218,000 and coal one of £113,000. Passenger traffics, on the other hand, have varied, and the returns for the two weeks for the four companies taken together show no change. Liverpool Overhead and Mersey

	2nd Week				Year to date	Inc. or dec. %
	Pass. &c. £	Goods, &c. £	Coal, &c. £	Total. £	£	
G.W.R.	—	+ 20,000	+ 3,000	+ 23,000	+ 43,000	+ 5.21
L.M.S.R.	+ 5,000	+ 60,000	+ 28,000	+ 93,000	+ 157,000	+ 8·35
L.N.E.R.	+ 2,000	+ 51,000	+ 31,000	+ 80,000	+ 123,000	+ 8·91
S.R.	+ 5,000	+ 2,500	+ 4,500	+ 12,000	+ 8,000	+ 1·28

receipts continue to show improvement, the Liverpool Overhead now being £104 to the good and the Mersey £456. London Passenger Transport Board earnings for the past week amounted to £510,800, bringing the total for the 28 weeks to £13,886,600. Irish railway traffics, on the contrary, are unsatisfactory, the returns for the past week being down both in passengers and goods.

Nine Months' Passenger Traffics

The nine months' analysis of main line traffics, published with the Ministry of Transport statistics for the month of September, 1933, excludes all figures relating to the Metropolitan and the Whitechapel and Bow Joint Railways which became vested in the London Passenger Transport Board as from July 1 last. Exact comparisons cannot, therefore, be made with the analyses for the first two quarters of 1933, which included the figures relating to those two undertakings. The nine months' analysis, however, gives an indication of the great growth of traffic in the third quarter. In the first

quarter of the year there were decreases, apart from season tickets, of 4·62 per cent. in passenger numbers and of 11·65 per cent. in passenger receipts. On the other hand, for the six months to June 30, there was an increase of 0·30 per cent. in numbers, and the decrease in receipts had come down to 1·10 per cent. For the nine months the number of main line passengers was 608,417,981, an increase of 17,065,384, or 2·89 per cent., and the receipts amounted to £35,543,914, an increase of £447,290 or 1·27 per cent. Period excursions, which included summer tickets, were mainly responsible for the growth in receipts, the number of such passengers having been 28,344,406, an increase of 17,491,558 or 161·17 per cent., and the receipts therefrom £10,822,582, an increase of £6,127,255 or 130·50 per cent. This growth has been to a great extent at the expense of standard and week-end tickets. Standard fare passengers for the nine months numbered 75,614,101, a decrease of 12,524,554 or 14·21 per cent., and standard fare receipts were only £7,488,542, a decrease of £2,967,307 or 28·38 per cent. Week-end fares brought in £1,137,113, a decrease of £1,601,199 or 58·47 per cent.

Overseas Railway Traffics

Within the past fortnight one of the most striking features of overseas railway traffics has been the improvement in the position of the Canadian Pacific, which for the last week of the old year recorded a gain of £29,000 and for the first week of 1934 has an increase of £60,000. Though at the end of last November it had an aggregate decrease of £1,975,800 in gross earnings, the fall in net earnings for the eleven months was only £32,600. A welcome, though small increase, is shown by the Central Argentine for the past week, following a decrease of only £1,000 for the previous week. In the past fortnight, on the other hand, the Buenos Ayres Great Southern has had a drop of £68,000 in receipts, reducing its aggregate increase for the year to date to £128,000. During the same period the Entre Rios has improved its traffic position by £12,900, and has brought its aggregate decrease for the 28 weeks down to £16,800.

Railway.	No. of Week.	Weekly Traffics.	Increase or Decrease.	Aggregate Traffic.	Increase or Decrease.
		£	£	£	£
Buenos Ayres & Pacific	28th	120,000	—	2,641,000	— 167,000
Buenos Ayres Great Southern ..	28th	247,000	— 37,000	5,097,000	+ 128,000
Buenos Ayres Western	28th	75,000	— 5,000	1,711,000	— 69,000
Central Argentine	28th	202,000	+ 1,000	4,424,000	— 796,000
Canadian Pacific	1st	379,600	+ 60,000	—	—
Bombay, Baroda & Central India	40th	172,050	+ 11,625	5,817,075	+ 140,025

Bengal & North Western Railway

The 1,307 miles of metre-gauge line belonging to the Bengal & North Western Railway Company form the largest privately-owned railway now remaining in India. In addition the company works the 798 miles of the Tirhut State Railway. As shown by the report for the year ended September 30, 1933, the results of working the system varied only slightly from those of the previous twelve months. In the gross earnings of Rs. 3,34,13,874 there was an increase of Rs. 8,50,785, but in the working expenses of Rs. 1,49,56,076 there was an advance of Rs. 5,80,089, causing a slight rise from 44·15 per cent. to 44·76 per cent. in the operating ratio and leaving net earnings Rs. 2,70,696 higher at Rs. 1,84,57,798. The company's share of net earnings amounted to Rs. 1,02,97,602 realising £772,320, as compared with Rs. 1,03,37,005 and £775,275 respectively in 1931-32. Stockholders receive the same return (16 per cent.) as for the two previous years. Coaching receipts, amounting to Rs. 1,35,57,733, were Rs. 3,74,079 lower than for 1931-32, but goods traffic earnings rose Rs. 11,91,513 to Rs. 1,94,66,514. Passenger numbers fell from 30,558,864 to 29,285,446, but the tonnage of goods lifted rose from 3,753,043 to 4,331,699, the principal increases being under sugar cane and sugar, rice and wheat. In grain and pulses, however, there was a decrease. Maintenance of way, works and stations increased by Rs. 27,278, carriage and wagon expenses by Rs. 3,74,894 owing to the renewal of 200 goods wagons, and traffic expenses by Rs. 63,591, but in locomotive expenses there was a decrease of Rs. 7,309, although train mileage rose from 8,049,427 to 8,391,867.

German Railway Enterprise

Last week we summarised Dr. Dorpmüller's forecast of the German State Railway Company's traffic operating policy, the essential feature of which is the decision to exploit to a greater degree than hitherto the speed possibilities of the railways. Development in the design and construction of light but powerful railcars and recent improvements in the steam locomotive have made possible much higher average speeds than hitherto without anything like proportionately increased costs. Last year the Flying Hamburger diesel-electric railcar, booked at an average of over 77 m.p.h. between Berlin and Hamburg, demonstrated these possibilities in regular service, and it is proposed soon to have similar fast railcars in operation on the main lines radiating from Berlin to Dresden, to Leipzig and to Hanover and Cologne. More railcars will also be added to local and secondary services which will consequently be increased in intensity and speed. Finally, the ordinary steam trains are to be accelerated and their maximum speed limit raised to 75 m.p.h. Some of these improvements will come into force with the next issue of the timetables in the spring, but the raising of speed limits in Germany involves considerable preliminary work in the way of signalling alterations which will take time to complete. Meanwhile the omens are auspicious for the future vitality of the German State Railway under the able direction of Dr. Dorpmüller.

Progress in the Goods Department

Keeping abreast of the times in the Goods Department was the subject of an interesting lecture given by Mr. H. W. Payne on January 11 at Paddington before the Great Western Railway Lecture and Debating Society. The Goods Department is essentially commercial, and must be concerned with business problems touching the terms of conveyance of traders' minerals and merchandise. The lecturer accordingly gave an informative account of the principles underlying rate making and particularly the granting of exceptional rates, and explained the measure of relief conferred upon the railway companies by the Road and Rail Traffic Act in the matter of agreed charges. Activity in traffic-getting was never more vigorous or better directed than it is to-day, and it is supplemented by the greatly improved facilities of every kind which are offered to traders and have proved their value in speeding up—and therefore increasing—traffic and in working it more economically. Registered transits, initiated by the Great Western Railway in 1929 and adopted by the other companies in 1933, have proved very popular and their use is being continually extended. Another example of the department's readiness to move forward is the abolition of the truck side check, the delivery check being now alone depended upon. This makes for economy in goods handling as well as for more speedy deliveries. The lecturer referred also to the development of fast goods trains, the increasing use of containers, railhead road deliveries from regional centres, country lorry services, and special road haulage contracts.

Shenfield Widening On page 95 of this issue will be found an illustrated article describing the widening of the London & North Eastern Colchester main line between Gidea Park and Shenfield. The provision of four tracks from Liverpool Street to Shenfield, where the main line is relieved of the Southend line trains, should greatly facilitate the working of all classes of traffic, especially as automatic colour searchlight signals have also been installed. As a result of the recent completion of these works additional trains are now being run and others have been extended, representing an increase of some 5,500 miles a week. Included in this figure are both main line and suburban, as well as Southend trains, all services being materially improved, both passenger and goods. Fewer checks and stops on the Brentwood bank, with its severe grading, have particularly improved the working of heavy Continental and other freight trains, and shunting operations at stations on the widening have been facilitated, with corresponding improvement to the general running of trains. In foggy weather, too, the searchlight signals are now proving their worth, and the all-round benefits secured by these important improvement works are already evident, though they will be even more fully appreciated during the summer months with their heavier traffic.

Tail Lamps Twice during last year attention was drawn in separate accident reports to the need for more powerful tail lamps, particularly now that side lights have been abolished from passenger trains. One of these accidents was the collision at Three Bridges (see our issue of August 18) and the other that at Pontllynfraith, reviewed by us on November 24. The former was, for two reasons, of greater importance; (1) because it was alleged that the light of the tail lamp was overpowered by a colour light signal in advance of it, and (2), because Colonel Anderson said that " In view of the importance of brake van lights of sufficient power . . . I am glad to learn that the Southern Company had been experimenting with one of greater power before this accident occurred." We are led specially to mention this subject now because the Three Bridges collision had a remarkable parallel in the collision of December 6 near Alne between a fish train and a goods. The former had been pulled up at an automatic signal and, after obeying that part of the stop-and-proceed rule which allows a train to proceed after having stood a certain time, the driver proceeded and, seeing the next signal at green, took it as applicable to his train. Suddenly, he told Colonel Woodhouse (whose report has not yet been issued), he saw a dim red light some 75 yards in front which belonged to the goods train and it was for that train that the green signal was exhibited.

The Stop-and-Proceed Rule Another important question has been brought to a head by the Three Bridges mishap and the recent collision near Alne. That is the operation of the stop-and-proceed rule which, in automatically-signalled territory, allows a driver, having stood at a signal, which continues to exhibit red, for a certain specified time—in some cases for one minute and in others for three minutes—to pass the signal and to proceed cautiously, prepared to find an obstruction in the section, until he reaches the next signal. At Three Bridges a speed of 5 m.p.h. was laid down, but the motorman, thinking that the signal at yellow that he saw before him applied to his train, travelled at 30 m.p.h. Had he obeyed the rule in that respect the speed of 5 m.p.h. would have permitted him to pull up in time before striking the goods train for which the yellow light was being shown. At Alne, on December 6, the driver, after stopping at the automatic signal, proceeded at 15 to 20 m.p.h. It must also be remembered that there was a collision under automatic working in Hampstead tunnel, Marylebone, on January 16 of last year but the operation of the stop-and-proceed rule did not arise there. It has, however, now assumed such great importance that the Ministry of Transport has called for a three months' return as to the frequency with which it is exercised and a Clearing House committee has been appointed to consider the matter.

Portable Lamps Instead of indicating a host of fondly cherished hopes, as designers and manufacturers are apt to do when describing an article, the user generally confines himself to realities, and for this reason his testimony is nearly always valuable. From the paper on portable lamps, given by Mr. Cunnington on January 9, before the Illuminating Engineering Society and summarised elsewhere in this issue, we were interested to learn that all our old troubles with lamps could be intelligently interpreted and overcome by careful design. There is the oil lamp which persists in running up the minute one's back is turned and making all things several shades darker with horrible smuts. This evil is due to a creeping of heat downwards from the wick. Then there is the acetylene lamp we have all had on our bicycles, which threatens to go out and to blow up alternately. In this sort of lamp, and in many of the automatic type, the carbide is not wetted with sufficient finesse. Needless to say the railways have not proved to be as long-suffering as the private individual. Economic motives, and possibly a regard for the ears of those who must hear the navvy at his work, have prompted them to demand reliable and efficient lamps of all kinds. The units favourably described by Mr. Cunnington will go forth into the hands of new users with something better than a maker's guarantee behind them.

Advantages of Testing Feed Water Since the inauguration of water treatment plants on one of the railways in the United States about ten years ago, locomotive mileage has increased until at present a number of passenger engines are averaging more than 400,000 miles between shoppings. Four of these engines that ran a combined total of 1,643,742 miles since the last shopping have just been returned for repairs, the highest total recorded being 450,365 miles. More than 80 freight engines have 100,000 miles or more to their credit, while a number of heavy locomotives in the same category have records exceeding 200,000 miles, a few even approaching 300,000 miles. Prior to the installation of the water treating plants and the centralisation of responsibility for their operation and control, locomotive boiler failures on this line, the Missouri-Kansas-Texas, occurred at the rate of one for every 40,000 to 90,000 locomotive miles. According to the *Railway Age*, the fuel consumption records are equally corroborative of the economy of water treatment. In 1923, passenger service required 1·21 gallons of fuel oil per car mile, while in 1931 this figure was reduced to 0·85 gallons. A reduction of 31 per cent. has also been obtained in freight service, whilst in shunting service the decrease amounts to 21 per cent. There are 72 water treating plants of various types installed on the system; they are of the continuous type and vary from straight soda-ash to complete lime-soda ash, sodium-aluminate treatment.

Future of the Burma Railways

IN connection with the Joint Committee on Indian Constitutional Reform, the Secretary of State has prepared a memorandum setting forth his tentative proposals for the future administration of the Burma Railways under the constitution outlined for a separated Burma. It suggests that these railways should be managed by a Statutory Board constituted on lines somewhat similar to those proposed for India, but with executive powers. After setting forth major considerations governing the problem—which is much simpler than in India—such as Burma's single railway administration and length of only 2,000 route-miles, entirely State owned, the memorandum points out that no railway authority intermediate between the Legislature and the Government on the one hand and the executive management on the other—such as is proposed for India—is for these reasons required in Burma. A single Board of Management, suggestive of a company's board of directors, is recommended, which would exercise comparatively detailed control of the unitary system. The personnel of this Board would consist of a President, who would be the Agent (or General Manager); two official members—the Financial Adviser and Secretary to Government in the department responsible for railways—and six non-official members, two of them appointed by the Governor in his discretion and one nominated by each of the four Chambers of Commerce in Rangoon.

The proposal is that non-official members are to hold office for five years, their emoluments being fixed by the Act for the first three years only, after which the Governor shall fix them. He may also in his discretion and after discussion with Government, remove any member for sufficient cause. No Minister or Member of the Legislature can have a seat on the Board within a year of his vacating either of the two former positions. These are safeguards against political interference. The chief officer of the Board, who will *ex-officio* be the President, will be appointed by the Governor in his discretion and will have right of access to him. He will be designated Chief Commissioner and must have expert knowledge and practical training in the work of railways. The Financial Adviser is required on the Board because of the vital importance of railway finance to general finance. The Secretary to Government will form the link between the Board and the Ministry. It is considered undesirable for the minister responsible to be a member of the Board or to have a vote at any meeting, but he will be expected to defend railway policy in the Legislature and hence the importance of his representative—the Secretary to Government—on the Board. The present Railway Advisory Council has no financial control and is not therefore an essential part of the new scheme. It may, however, continue to function as voicing public opinion on matters affecting the users of the railways, but the Chief Commissioner, as Chairman of this council, may rule out any matter brought before the Advisory Council. As the Chambers of Commerce are represented on the Board, they will in future no longer need to be represented on the Advisory Council.

Financially, the net profits of the railways will be disposed of as agreed between the Government and the Board under a scheme of apportionment running for not less than five years. Revenue estimates will be submitted annually to Government, which in turn will submit them to the Legislature, but they will not be subject to vote. The programme of capital expenditure financed by loans by the Government and proposals for new constructions, however financed, will be submitted to the Government for approval by the Legislature. The rights of officers in the Service when the Board is established are to be safeguarded by the Governor as by the Governor-General in India. Subject to the control of the Government of Burma, the Board, in consultation with the Public Service Commission, will frame rules regulating classification of railway services, methods of recruitment, qualifications for appointment, conditions of service, pay, allowances, provident fund benefits, gratuities, pensions and other establishment matters. Generally, therefore, safeguarding is on much the same basis as in India. In Burma, however, the fact that the Agent is also Chief Commissioner and necessarily a practical railwayman, that one non-official member must be a European business man, three others business men of different nationalities—Burman, Indian and Chinese—and two other non-official members are Governor's nominees, should insure that the Board will have a substantial business and practical majority with expert railway opinion to guide it. Its essentially cosmopolitan constitution should also tend towards balanced opinion.

Weak Bridges

DISCUSSING various aspects of the Road and Rail Traffic Act at a conference in London on January 11, the Minister of Transport spoke quite plainly regarding the misconceptions which have arisen in certain quarters as to Section 30, giving power to prohibit or restrict the passage of vehicles over certain bridges. This section was inserted in the Bill when it was before the House of Lords and, although its operation has been deferred, steps are being taken with a view to bringing it into force at an early date. Mr. Oliver Stanley pointed out that it covered practically the same ground as Section 25 of the Road Traffic Act, 1930, largely a consolidating section which it was the clear intention of Parliament to bring into force immediately, as that Act repealed powers previously held by bridge authorities under Locomotive Acts and Heavy Motor Car Orders. That section had been considered unworkable in practice, however, one grave defect being that it would have empowered bridge authorities to impose restrictions without any effective power of review. Under the new Act the position is made much more fair for all concerned. It will be necessary to give a month's notice of any intention to impose restrictions, but there is the further and much more important provision that, where an appeal against the restrictions is made to the Minister, he may have the bridge inspected and require the bridge authority to give all necessary facilities and information for that purpose. Thereafter the strength, or weakness, of the bridge will be a question of fact and any restrictions that may be imposed will apply alike to all vehicles of excess weight, including, of course, those belonging to the bridge authority. That should dispose of the insidious and wrongly-informed argument that the railway companies inspired the section with the object of using it as a weapon to hamper competing road hauliers. Where bridges are not strong enough to bear the traffic which seeks to pass over them no amount of argument will rectify the matter. The only way of dealing with a weak bridge is to strengthen it.

The Minister has emphasised that in the case of bridges which cross railways there is a much greater responsibility than that of merely replacing the structure should a collapse occur. There is the possibility of the accident happening at the moment of the passing of a crowded express with consequences so appalling that no one could be asked to take such a risk. That is a consideration which cannot lightly be brushed aside. Mr. Stanley knows only too well that the difficulties of combining reasonable protection for bridge authorities with reasonable freedom for the operators of road transport have never been slight and, while he does not say that we are yet entirely out of the wood, he hopes that the

conference of representatives of those interests concerned, now being convened by the County Councils, will be of considerable assistance. As the pages of THE RAILWAY GAZETTE show, much valuable work has already been accomplished in strengthening road bridges, and the Minister of Transport has promised to do all that is possible, within the limits of the funds at his disposal and taking the schemes in order of priority, from the points of view of danger through overloading and importance to road users.

Sudan Government Railways

AN important part of the activities of the Sudan Government Railways is the series of steamer services provided in connection with them. The Nile steamer services between Shellal, the southern terminus of the Egyptian State Railways, and Wadi Halfa, the northern terminus of the Sudan Government Railways, provide a link in the through communication between Egypt and the Sudan, and before the construction by Lord Kitchener in 1896-99 of the military railway of 576 miles from Wadi Halfa to Khartoum, the only approach to the Sudan was by the river. South of Khartoum there are river services in the direction of Uganda, and the Dongola reach of the Nile is served by steamers between Kerma and Kareima. These three services are separate units and intercommunicate for traffic purposes through the railways. Communication by railway between the Sudan and the Red Sea was provided in 1905-6 from Atbara on the Halfa-Khartoum line, first to Suakin and then to Port Sudan, where a modern harbour was constructed. A branch from Abu Hamed to Kareima to serve the Dongola Province was also opened in 1905. Railway extensions followed of 205 miles southwards from Khartoum to Kosti. Since the war the principal new constructions have been the completion of the branch to El Obeid, and of the railways from Haiya Junction on the Port Sudan line to Kassala, Gedaref, and Makwar.

The report for the year 1932, which we have recently received from the General Manager, shows that the route mileage of railway open at the end of that year was 1,989 miles on the 3 ft. 6 in. gauge, and the mileage of river services operated was 2,326. In addition to railway and river services the administration operates Port Sudan Harbour, power stations, a catering service, mechanical transport, and miscellaneous services. These brought in for 1932 a revenue of £E.1,877,540, and a profit of £612,704, comparing with a profit of £E.413,208 in 1931, and giving a return on capital of 6·49 per cent., as against 4·62 per cent. in 1931. For each of the three years 1928 to 1930 inclusive the return had been over 9 per cent. In 1932 the profit from steamer services amounted to £8,758, from Port Sudan Harbour to £19,902, and from catering to £401. Figures in the accompanying table refer to railway services only:—

	1932	1931
Passenger numbers	433,932	418,857
Goods tonnage	430,850	397,991
Train kilometres	2,182,849	2,490,294
Kilometres open	3,203	3,216
Operating ratio, per cent.	60·4	70·7
	£.E.	£.E.
Passenger receipts	195,275	232,760
Goods receipts	1,135,814	1,020,858
Total revenue	1,466,511	1,405,984
Working expenses	886,494	994,145
Net profit	580,017	411,839

The increase in passenger numbers was due mainly to reductions in fourth-class fares, but reduced fares in all classes have so far caused a reduction in revenue. One of the finest cotton crops produced in the Sudan largely helped to increase goods revenues. Passenger and freight services were curtailed where necessary without impairing efficiency. The average loading of wagons on productive trains showed the satisfactory improvement of 1 ton per wagon. By means of the caboose system, whereby a second engine crew is carried to enable one locomotive to make a long through run, introduced in 1931, it has been possible to handle traffic with fewer engines, which together with an increase in train loading has resulted in a substantial reduction in coal and oil consumption. No new engines were bought during the year. Sixteen roadside stations were closed down during the year, making 26 in all converted to intermediate sidings. The central control office was moved from Gebeit to Port Sudan in April, 1932, and the system was extended to include the Divisional Traffic Superintendent's office at Port Sudan Quays. A determined effort is being made to develop the White Nile route as an interesting yet cheap alternative to the existing passenger route from Europe, via Mombasa, to the Belgian Congo and Uganda. In this connection the introduction as from January 1, 1933, of special first-class tickets from Shellal and Port Sudan to Juba and Nimule at very much reduced rates and including catering throughout and sleeping car accommodation on trains is expected to prove attractive. Owing to increased Imperial Airways traffic the Juba hotel showed an increased revenue and profit, but the administration's hotels at Port Sudan, Halfa, and Khartoum suffered from the general economic depression.

Roumanian State Railways

IN our issue of January 12 we reviewed the Roumanian railway position as disclosed in the latest report by M. Leverve, Secretary of the International Union of Railways, who has been acting as special Adviser to the Roumanian Government. Mr. Leverve's report takes us down to the end of 1932. A more recent report by the State Railway Administration announces as a result of the working for fifteen months, 1932-33, a balance between the two sides of the accounts for the first time since the war. The debit side shows an item of 216 million lei paid in to the renewal fund, bringing it up to one milliard lei, and another of 600 millions to the sinking fund, also now brought up to one milliard. Some 500 millions were also expended upon new material and apparatus. This even balance has been obtained despite the fact that the sum received for transport undertaken for State services was only 200 million lei, or barely a fifth of what should have been paid for them. In fact the State now really owes the railways 1,800 millions of lei under this heading. This probably explains why the above report does not seem to agree with that of M. Leverve on the same subject, announcing a heavy decline (64 per cent.) in passenger receipts for the first half of 1933, which it would be impossible to cover from goods receipts. M. Leverve estimated a deficit for the whole year of 500 million lei, and recommended that every economy be made, leaving a debt of 1,800 million lei for 1932/33 due for material received and 1,234 million for material in previous years. He said that fare reductions and free passes must cease. As the debt just mentioned and that of the State to the railway accounts cancel out, and the remaining ones are chargeable to the sinking fund, the railway report is understandable, as is also the pessimism of M. Leverve, as it is hard to see how the deficits of previous years can yet be made good.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of Correspondents)

The Signal Engineer's Department

London.

January 6

To the Editor of The Railway Gazette

Sir,—Mention is made in your issue of December 29 to the Signal and Telegraph Engineer's Department being independent of other railway departments. Therein an overseas correspondent stated that a "Signal Engineer is a specialised officer and operates in a field apart from all other branches of the service" and this should be sufficient to give him the status of an independent officer, responsible directly to the management of the railway. The article ends by stating that in time to come Signal Engineers throughout the Empire, if not throughout the world, will be given this status.

This last paragraph, however, does not appear to forecast correctly. The present tendency on overseas railways is to abolish Signal Engineers and their departments and rely on non-Signal Departments and even non-railway departments for the safe running of passengers, goods, and rolling stock. In many cases, instead of complete extinction of the Signal Departments, the staff is curtailed and expenditure necessary for proper maintenance is greatly reduced.

It should be pointed out to your overseas correspondent and to your readers that the Signal and Telegraph Departments on many colonial and overseas railways, have been abolished. Security, as provided by the well-trained and fully experienced Signal Engineer and his department, has been forsaken on the ground of economy, a non-railway engineering department being given charge of the electrical signalling. The mechanical signalling has been undertaken by a railway department possessing little knowledge of the profession or responsibility of signalling and the safe running of trains. This economy step is a retrograde one because non-railway departments possess no railway knowledge at all, let alone of signalling. The railway department in charge of mechanical signalling has no knowledge of that subject; in both cases the signalling and safety are placed in charge of departments having no experience.

Engineers in the Signal Department have been trained for years prior to their being given a responsible post and it certainly is not feasible that in a short time the Signal Department can be dispensed with and the other departments (railway or non-railway) take over. Yet this procedure has taken place on more than one overseas railway. In many cases the railway officers or non-railway officers in the departments concerned have been given a short course on signalling and a general idea of the apparatus is explained to them. They are then expected to carry out the full supervision and maintenance of existing signalling and to undertake the full responsibility.

Already in some cases signalling apparatus has been simplified by these departments to meet with current wishes. Such simplifications have reduced the safety limit of the apparatus concerned, as the departmental officers are ignorant of the reasons why certain locking and detecting devices were part of the apparatus. The officials of a department who are not imbued with the sense of railway security are apt to introduce arrangements which are perfectly satisfactory when applied to apparatus in which an extremely rare failure is unimportant, whereas such a failure on railway appliances would possibly be extremely vital.

No Signal Engineer would contemplate engaging an assistant to take charge of work, however small, unless that man had at least seven or eight years' signalling experience and, even then, he is regarded as a tenderfoot. Therefore, it seems desirable before going into the matter of the Signal Engineer's status that the question should be:—Is a Signal Engineer required at all? If it be agreed that the Signal Department (electrical and mechanical) is becoming more and more important, not only for assisting in the speeding up and running of increased traffic and establishing safe running, why is it then that the Signal Engineer and his department are being abolished in favour of non-signal and non-railway departments?

The travelling public, whether at home or abroad, expect the railways to provide safe running and the Signal Department should be firmly established on all railways for this specific reason. Safety must not be forsaken for economy, neither should the Signal Engineer be displaced by other departments, and he should be independent and allowed to operate in his field, apart from all other branches of the service, working at signalling, which spells safety to the travelling public.

Yours faithfully,

"AXED"

Engineers' Economic Study Group

Engineers' Study Circle on Economics,
Gunnersbury House,
Hounslow, Middlesex.

January 12

To the Editor of The Railway Gazette

Sir,—The paradox of poverty amidst plenty, of overproduction on the one side and under-consumption on the other, presents for technical men a problem of outstanding importance. Technical progress along present lines appears to many to be a contributory cause of the present economic disorganisation; further the practical knowledge of many qualified engineers and technicians is being wasted to an increasing extent.

The welter of advice, comment, and opinion now being offered from many quarters is more confusing than instructive to most people, for the basic causes of the trouble have not yet been isolated from subsidiary and associated effects. Many technical and scientific men, however, believe that the real difficulty arises from the fact that scientific methods have not been properly applied to economic and social problems. They consider that the application of such methods to production, distribution and consumption alike offers the logical solution of the world's economic difficulties.

Consciousness of these facts has stimulated a group of mechanical, electrical, civil, and chemical engineers, and others having scientific and technical experience, to meet together to exchange views, collect data and investigate the problem. Neither orthodox nor particular economic or political theories are allowed to prejudice the investigation, but constructive proposals from all quarters will be carefully examined. The group hopes eventually to issue a memorandum setting forth the conclusions reached, together with practical recommendations for meeting the very serious situation which now threatens social well-being.

The group, which meets, for the time being, every alternate Tuesday at 6.30 p.m. at the Guildhouse, Berwick Street, London, S.W.1, will welcome the assistance of technical and scientific workers in investigating this vital problem of widespread poverty and distress in the midst of plenty.

Yours faithfully,

PHILIP H. JOHNSON,
Honorary Secretary.

[See editorial note on page 85]

Swiss Railways.—At the January meeting of the Stephenson Locomotive Society in London, a lantern lecture was given by Mr. R. A. H. Weight which took the form of a personal narrative describing recent travels in Switzerland, principally over the most interesting sections of the Federal and Rhaetian Railways. Present-day travel conditions in that country were explained and interesting references made to the numerous rack-and-pinion and funicular railways, the fine scenery visible from some of which was well illustrated by slides.

THE SCRAP HEAP

A CANADIAN SHUNTING PROBLEM

Mr. S. S. Lloyd, formerly a Canadian National conductor at Vancouver, B.C., sent the following shunting problem, which confronted him in Alberta, to *The Canadian National Railways Magazine*. He said " On one occasion, while journeying between Lethbridge and Fort McLeod on a C.P.R. freight, we were held at a telegraph station by Despatcher Ed. Chudley, of Calgary, who inquired if I could meet a down extra at St. Mary's pit spur. Incidentally, I may say, my train (Up Extra, A in diagram) consisted of 30 cars, while Down Extra (C) consisted of 35 cars and caboose. The pit spur (B) could hold but nine cars and engine, with but one connection to the main line.

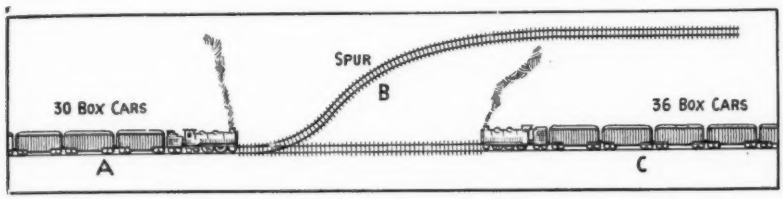


Diagram showing the two freight trains meeting at the junction with spur B

" My answer was, quickly, '-Yes,' and this is the way I solved the problem: A backs up his train, allowing C to advance with nine cars and back into B, closing switch. A then advances clear of switch. C pulls out and places nine cars behind A's caboose, his light engine re-entering the spur. A backs his train and C's nine cars down the main line. C goes for another nine cars and backs them into the spur as before. A again pulls past the switch and allows C to take his nine cars out to the main line. Four times all told, C makes the movement, putting nine cars into the spur and pulling them out when A is clear. When C's 36 cars are all behind A's caboose, the engine returns to the spur. A pulls his train, plus C's 36 cars past the switch and cuts off C's train. All C has to do then is come out of the spur, pick up his train and proceed east."

* * *

Long before Victoria railway station had spread out to its present expanse it obliterated the last vestiges of a popular London tavern and tea-garden known as Jenny's Whim. Dr. Johnson seems to have given the name, which originally he attached to an institution for spinsters which his friend, Miss Jane Wilkinson, founded by her will. The novelty of the tea-garden was its surprises. A visitor stepped upon a concealed spring in some alcove, " and up started different figures, some ugly and enough to frighten you—a harlequin, a Mother Shipton, or some terrific animal." The deplorable " sport " of duck-hunting was also an attraction at Jenny's Whim.—*W. B. in the " Daily Telegraph."*

* * *

The publicity department of the Canadian National has been doing some figuring and has issued an announcement which may possibly broaden the market for steel rail. It is pointed out that the Canadian National has 23,700 miles of track. If there were an even winter temperature of zero F. throughout the territory served by the company, it is calculated that 14 additional miles of rail would be needed to make up for the contraction of the laid rail at that temperature. —*From the " Railway Age."*

* * *

GLOVES

The gloves they gave us on Christmas Day,
We wore them once, then they went astray;
Gloves of the rich—they've others to wear,
The poor man's gloves—his only pair;
A left-hand glove that was risked to bring
Envy and praise for a diamond ring;
A " right " one pulled from a hand of charm,
Lost for the warmth of a lover's palm;
Pigskin and rabbit and reindeer, too,
Big and little and damaged and new;
Row upon row, in a railway rack,
Waiting for owners to claim them back
From the north, south, east and west, they meet,
In the Graveyard of Gloves at Baker Street.

—*T. W. in " Pennyfare."*

* * *

" Well, how's things, Bill? " asked the ganger.

" Goin' wi' a bang, thank'ee, Jim," replied the cheery fog-signaller.—*Who told you that? in " The Evening News."*

* * *

The driver of the 5.45 p.m. Berbice goods train won a race with death. George Stuart, a deaf man, was seen walking on the track near De Hoop, Mahaica, but apparently did not hear the train whistle. The driver jumped off in the nick of time and snatched the man from the jaws of death.—*From a British Guiana newspaper.*

* * *

THE NEW FIFE RAILWAY

The Newburgh & North of Fife Railway, which was formally opened yesterday, Wednesday [January 13], has been constructed at a cost of about £240,000. It connects the N.B. system between Bridge-of-Earn and Ladybank with the N.B. main line to Dundee and Aberdeen. — *From " The Glasgow Herald " of 25 years ago.*

* * *

The Railway Ministry in Nanking has re-opened the question of repairing the Canton-Kowloon Railway with the British Minister in China.—From a Singapore paper.

We regret the inference that our Ambassadors are sleepers.—*" Punch."*

We reproduce, by courtesy of the editor of the " Great Western Magazine," some early specimens of cardboard tickets issued by the G.W.R. and other undertakings, which are now part of the system

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

New 0-6-2 T locomotives and rolling stock, Great Southern Railways (Ireland)—Prague underground construction programme—Electrification of last suburban line in Cape Peninsula—Lagny collision—Argentine railway's successful appeals against municipalities—Italian accelerations—Success of lower-fare policy in New Zealand

IRISH FREE STATE

New 0-6-2 T Locomotives, G.S.R.

A new type of passenger tank engine has been designed by Mr. A. W. Harty, Chief Mechanical Engineer, and constructed at the company's works at Inchicore, Dublin, for suburban and short-distance mixed traffic service in the Dublin and Cork districts. A photograph of one of these inside-cylinder 0-6-2 engines is reproduced on page 108. Steam is distributed to the cylinders by 8 in. diameter piston valves operated by Stephenson link motion, and the boilers are equipped with M.L.S. superheating apparatus having the Stirling type header. The firebox is of the Belpaire pattern and upon it are mounted two Ross patent pop safety valves. A departure from standard practice in building these engines is the fact that the tanks, cab and platform are of welded construction.

The following are the main particulars:—

Cylinders, diameter	18 in.
,, stroke	24 in.
Wheels, coupled, diam.	5 ft. 6 in.
,, pony truck	3 ft. 0 in.
Boiler, working pressure	160 lb. per sq. in.
Heating surface, firebox	112 sq. ft.
,, ,, tubes	662 sq. ft.
Total	774 sq. ft.
Superheater	112 sq. ft.
Combined total	886 sq. ft.
Grate area	18 sq. ft.
Tractive effort at 85 per cent. of boiler pressure	16,020 lb.
Adhesion weight	45 tons 5 cwt.
Tank water capacity	1,500 gallons
Bunker, coal capacity	3 tons
Weight in working order	57 tons 7 cwt.

The design is noteworthy for its neatness of appearance and simplicity of detail. Five of the engines have been built and all of them are now in service. They constitute the 670 class.

Rolling Stock Orders

Inchicore works are now comparatively busy again and two new shops are under construction and should be completed next autumn. The steelwork for the new structures is being fabricated in Dublin by Vickers (Ireland) Limited. As well as the first five locomotives of the 0-6-2 type described above, a new mail train for the Dun Laoghaire-Cork service has been turned out during the past year, and repair works undertaken have been varied and extensive. A further ten locomotives and another new corridor train are expected to be completed during 1934. But the largest order is for 500 new open goods wagons required for expansion of the sugar beet traffic, described below. Further improvements contemplated by the company are in the permanent way, with a view to speeding up train services other than on the Dublin-Cork main line.

Peat and Beet Sugar Traffic Developments

The Government is making arrangements to facilitate and encourage the production and sale of peat. It is considered that a reasonable price to the producer is 11s. 6d. a ton, to which must be added rail or canal freights and delivery charges. By arrangement with the Great Southern Railways the turf will be conveyed in sacks at a flat rate of 6s. a ton, station to station, for any distance; reduced rates have also been given by the Grand Canal Company. Thus the price to the approved distributor or merchant will be 17s. 6d. a ton delivered at the nearest railway station or siding.

Three additional beet sugar factories are to be established at Thurles, Mallow, and Tuam, which are expected materially to benefit the railway company, initially by the carriage of materials for the construction of the buildings and later by the carriage of the raw beet for the manufacture of sugar, and the carriage of sugar, coal and limestone used in the process, as well as the finished product sugar and the by-product pulp.

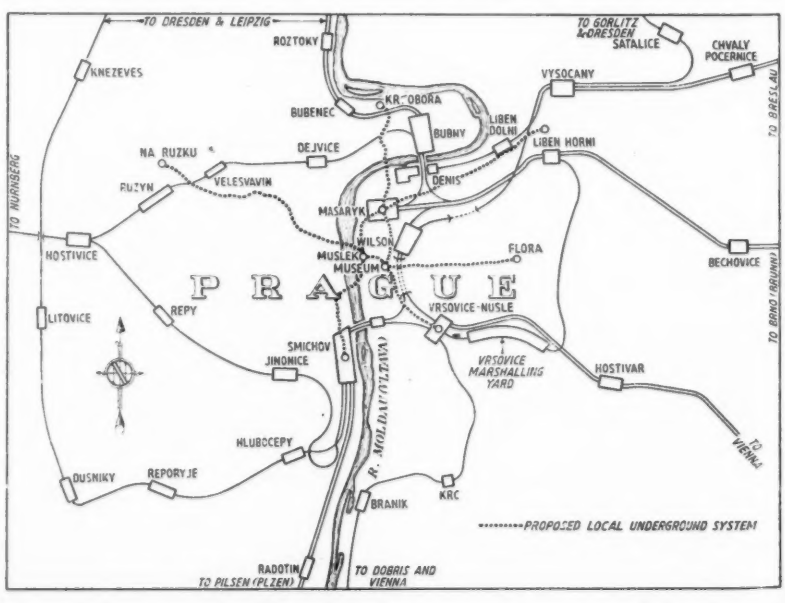
New Wagons

As stated above the Great Southern Company has already ordered 500 new wagons required in connection with the new beet factories and it is expected that this order may be increased. In the ordinary course roughly three wagons are required to comply with an order for one wagon a day at a station, that is to say, one wagon is loading, one is in transit to the beet factory and another is returning from the beet factory for the next day's special, so that the actual number necessary for the working of the beet traffic is normally three times the number loaded a day.

CZECHOSLOVAKIA

Underground Railways for Prague

Owing to the increased street traffic in the city of Prague, the municipal authorities have had under consideration for some time past the construction of a system of underground electric railways. The submission of schemes was invited and, according to V. Hekcir in *Revue Générale de l'Electricité*, the proposals of the Skoda firm have been received most favourably as they provide for maximum retention of the beauties of the ancient city, while allowing for extensions as required by growth or population in the new



Railway map of Prague showing proposed underground lines

districts. From examination of the various systems of public transport in Prague and cities abroad, it is assumed that an underground railway as proposed for Prague could easily carry 45,000 passengers an hour in one direction, whereas tramways could carry 12,000 and motor buses only 4,500 persons under the same conditions.

As shown by the accompanying map, the proposal is for the construction of three lines. The first line from Liben Horni through the Masaryk station and Muslek to Smichov will be 9·3 km. ($5\frac{3}{4}$ miles) in length with 14 stations serving the most densely populated areas, the centre of the city and the business quarters. It is intended that this line shall be opened in 1936, and no particular difficulty in construction is anticipated, the gradients being easy throughout. This line will result in almost immediate improvement of conditions in areas where it is most urgently required. The second line, from Na Ruzku to Muslek, Museum, and Flora, to be completed in 1942, will be 6 km. ($3\frac{3}{4}$ miles) in length with 12 stations. Finally, a line, from Kr. Obora to Masaryk, Museum, and Vrsovice-Nusle, also 6 km. ($3\frac{3}{4}$ miles) in length, is planned to be completed in 1950. The completion of this scheme, providing a total of 21·3 km. ($13\frac{1}{4}$ miles) of underground railways, will relieve entirely the congestion of the streets.

Three-coach units

The 1,500-v. d.c. system of traction is to be used, with two substations for the first stage of development. The cost of construction is estimated at 40,000,000 Czechoslovakian crowns per km. (about £585,100 a mile, at 110 crowns = £1), including stations but excluding rolling stock and the electrical plant. For the most part, the tunnels will be near street level but, under the River Vltava, the old city and the wharves, they may be at a depth of 16 m. ($52\frac{1}{2}$ ft.). Trains are to consist of two motor coaches, each with four 150 h.p. motors, and a trailer between. Through booking facilities will be available between the tramway and underground systems. The programme also provides for omnibuses, and for trolleybus services to the suburban boundaries.

The extension of the three underground railways as surface lines in seven different directions will provide greatly improved railway communications between Prague and the surrounding country, while solving the problems arising from the present insufficiency of stations in the city. Finally, interurban transport for passengers and goods is to be provided by an organisation, the Stredoceska Doprava, representative of State, municipal and private interests, with 28 motor bus lines for passenger service and 15 for goods service, the latter being arranged in collaboration with the Czechoslovakian State Railways.

SOUTH AFRICA

Cash on Delivery System

The c.o.d. system has been amplified to the extent that goods are now accepted under this system for transport by rail from sidings and stopping places on the Administration's lines. Consignments, accompanied by a c.o.d. consignment note and account form and bearing c.o.d. labels, must be handed to the guard of the train. The new arrangement differs from the ordinary c.o.d. conditions applicable to traffic despatched from stations in that, if the consignee fails or refuses to take delivery of the traffic at destination within seven days after the expiry of the free storage periods allowed by regulation, the goods, instead of being returned to the sender, will be warehoused at the destination station. The consignor will be advised of the non-delivery and his instructions sought as to the disposal of the goods. It is also a condition of acceptance that if the sender fails to give disposal instructions within three months of despatch, or earlier if the goods show signs of deterioration, the goods will be sold by the Administration to the best advantage and the consignor will be required to pay any balance of charges which may be due after the proceeds of the sale have been taken into account. Perishable consignments are, however, dealt with under the usual conditions, that is they may be sold if unclaimed six hours after arrival at destination.

Electrification of Cape Flats Line

The announcement has now been made by the Railway Administration, that the electrification of the Cape Flats line will be proceeded with immediately. The sanction of the Railway Board has not yet been obtained but that may be regarded as a more or less formal matter. This electrification, which extends ten miles from Maitland on the Cape Western main line to Diep River on the Capetown-Simonstown electrified line, will be a much simpler matter than that of the Bellville section as there will be no main line traffic interruptions to contend with. It is felt that with a rapid and efficient service the Cape Flats area will develop and that the line will soon be financially justified.

As in the case of the electrification of the Bellville line, the Cape Flats scheme will be executed departmentally and it is expected that the whole programme will be completed and brought into operation by the end of March, 1934. Every suburban line in the Cape Peninsula will then be electrified —a total route mileage of approximately 50 miles—thus providing it with the best suburban service in the country. At one time there was every likelihood that the Cape Flats line would be scrapped. That was when the bus competition was at its height. Residents in the area in question made use of buses almost exclusively, as they took them to the city much more quickly than the trains. Subsequently restrictions imposed on their operations, however, caused the Flats bus routes to become merely feeder services to the railway.

Financial Position

The result of working the railways, harbours and steamships for the six months of the current financial year, *i.e.*, at September 30, 1933, was an accumulated deficit of £3,184,534. This result takes into account contributions to various funds amounting to £168,500 as well as the deficit of £3,692,077 at March 31, last. The Administration has seen fit to draw attention to the surplus of half a million pounds for the half year ended September 30, regarding which it is pointed out misunderstanding as to the financial position may occur. The actual position is that the surplus revenue over expenditure amounts to £507,543, but in this are included certain items of an extraneous and extraordinary nature such as profit from the sale of stock invested by the Public Debt Commissioners and the railage on drought-stricken stock, of which approximately half is rebateable on return of stock, the amount due in this latter connection alone amounting to about £118,000. Allowing for these factors, the real working surplus for the period in question is only £269,043. Railway earnings are being well maintained and for the five weeks ended November 25 they amounted to £2,396,615 compared with £1,994,280 in the corresponding period of 1932. Goods traffic alone registered an increase of £272,795.

FRANCE

The Lagny Disaster

The parliamentary debate on the Lagny railway disaster has been postponed and the hearing of the charges against certain railway officials will not be proceeded with until the preliminary inquiry by the examining magistrate has been completed. The experts, who are investigating the signalling, have agreed to present a report within a month instead of the six months they at first requested. The magistrate is taking the evidence of drivers of other trains in the direction of Lagny on the day of the accident, December 23. The driver of the slow train from Paris to Lagny said that he left the gare de l'Est at 6.45 p.m. instead of 6.5 p.m. and arrived at Lagny 61 minutes late. In the last section between Vaires and Lagny he found the warning signals against him and said that because of the fog the signals were invisible beyond ten metres. He had stopped at Vaires, where three trains passed him in seventeen minutes. At Pantin, the first station out of the terminus, the *damier* or distant signal gave the line clear indication, he said, but the "crocodile" sounded the whistle in his cab and as a precaution on the side of safety he applied the brakes. Ten

minutes after his arrival at Lagny, the disastrous collision between the Strasbourg rapide and the Nancy express occurred.

The commission of the Ministry of Public Works, after having examined the various safety systems at present in use, has made certain suggestions. It urges the necessity of quadruple tracks through the suburban area, and of the adoption of steel coaches for main line trains. The need of adapting the methods of signalling to the speed and frequency of the trains is also urged, as well as the organisation of first-aid relief in case of accidents. A sub-committee has been appointed to follow the results of the inquiries now in progress.

State Railways Anti-waste Exhibition Car

The State Railways have undertaken an educative campaign against waste throughout the system. For this purpose an exhibition car will make a five months' tour of the various lines. It comprises numerous object lessons of waste to be avoided and will be open to all railwaymen at the different stations where it will stop.

ARGENTINA

Arbitrary Actions of Municipalities

A case arose recently in which the Buenos Aires Municipality forcibly reopened a level crossing over the lines of the Cordoba Central Railway, near the zone of the New Port, though this crossing had been closed by the railway company in the interests of public safety. The company appealed to the Government, and the question was submitted to the Legal Assessors of the Dirección-General de los Ferrocarriles, who vindicated the action of the railway company, declaring that the municipality had exceeded its powers in interfering in a matter which solely concerned the Director-General of Railways. The Director-General was therefore authorised to prohibit—by force, if necessary—all traffic over the crossing in question until the matter had been finally decided by the National Railway Board.

In a somewhat analogous case, the B.A. Municipality claimed from the Lacroze Tramway Company the sum of $21,455 paper, being the contribution of 6 per cent. on the company's receipts for the month of July, 1932, plus 50 per cent. of the sum stated to be a fine for non-payment, making a total of $32,182 paper. The tramway company accepted liability for the contribution, but denied the right of the municipality to impose a fine for non-payment, on the grounds that the prerogative to do so pertained solely to Congress, and, in any case, the municipality could not legally impose a fine of more than $500. On the matter being taken to the courts, the judge who tried the case in the first instance ordered payment of the contribution but reduced the fine to $500. The municipality thereupon took the case to the Court of Civil Appeal, which confirmed the ruling of the lower court with respect to payment of the contribution as established by law, but remitted the fine altogether and ordered the municipality to pay the costs of the action.

For some years past, the growing tendency of the municipal authorities, both in Buenos Aires and in the provinces, to bring arbitrary pressure to bear on the railways and tramways to carry out unnecessary works at their own expense or submit to illegal taxation, has been a thorn in the side of these concerns, and the action of the State Law Officers and the courts in restraining such unjust encroachments on the rights of the companies as well as the prerogatives of the Government, will relieve the transport organisations of at least one serious difficulty under which they are at present labouring.

BELGIUM

New Series of Reduced Fare Tickets

Two new series of tickets came into force on the Belgian National Railways on January 1. One of these consists of a season ticket available over the whole system during any five, ten or fiteeen days within a limit of 30 days, while the other will enable passengers to perform ten return journeys between any two stations, on any day, within the period of validity (three months), at a rate including a reduction of 20 per cent. on the ordinary fares. The prices of the 5, 10 and 15 days' season tickets are:—

	First	*Second*	*Third-class*
5 days	450 fr.	320 fr.	180 fr.
10 days	710 fr.	480 fr.	270 fr.
15 days	920 fr.	620 fr.	350 fr.

ITALY

Brenner Accelerations

In view of the opening of the Bologna-Florence Direttissima in April, 1934, a meeting was recently held at Innsbruck between officials of the Italian State and Austrian Federal Railways, at which arrangements were made for the institution of fast through trains from Germany via the Brenner. It was also agreed that the stop at the Austro-Italian frontier station, Brenner, shall be limited to 30 minutes for the necessary customs examination, and under the proposed timetable the journey from Munich to Rome will take only 16 hours via the new Direttissima instead of 20 at present.

Higher Speeds for Secondary Lines

At a recent Cabinet Meeting the Minister of Communications, Sgr. Ciano, submitted the text of a Royal Decree for the approval of the Cabinet, by which the maximum speeds on the secondary railways as fixed by the Law of 1912 are abolished. This law, which governs the concessions for secondary railways, fixed the maximum speed for trains provided with continuous brakes at 60 km.p.h. and at 45 km. for other trains. In view of the vast improvements effected during the Fascist régime on the secondary railways (mostly privately owned) both as regards permanent way and rolling stock, it was found that these speed restrictions could be abolished without impairing the safety of passengers and traffic. Though apparently an insignificant measure, this assumes considerable importance in view of the extensive networks of secondary railways in certain parts of the country, notably Piedmont, Lombardy and Veneto, where the many industrial and agricultural towns are interconnected by secondary lines carrying a very considerable traffic. The new measure will allow the efficient use of railcars on many of these lines and so considerably enhance the earning capacity of the companies now suffering acutely through road competition.

NEW ZEALAND

Railway Forestry Officer

The recent appointment of a Forestry Officer to the New Zealand Government Railways is an indication of the valuable land and forest reserves held by this Department and the determination of the Railways Board to use these to the best purpose. The new officer, Mr. A. Hansson, has wide experience in forestry work in Europe and America as well as with the New Zealand State Forest Department, and will undertake afforestation work on waste land as well as checking milling operations in native forest reserves.

Low Fares Vindicated

The railway financial year ended March 31 last showed an increase of 367,004 passenger journeys compared with the previous year and this has since been increased by a further 186,789 passengers to October 14. This increase in the ordinary passenger traffic, which averages annually about 7 millions, is distinctly gratifying, following a long period of steady decline in this class of traffic, and vindicates the Railways Board's policy not only "to exploit to the fullest possible extent existing travel ideas," as stated in the latest Annual Report, but also "to be continually on the look-out for new ideas that would make for stimulation of the railway-passenger business." This policy included substantial reductions in ordinary fares, giving the effect of "all the year round" excursion rates. Although the immediate effect of the reductions was a decrease in revenue, the stimulation has been such that the financial ground lost has been more than recovered, and the last six months show an actual increase in passenger revenue amounting to £44,286. Another popular change has been the reduction from 25s. to 20s. recently made in the fee for *de luxe* sleeping berths on Limited expresses.

GIDEA PARK TO SHENFIELD WIDENING, L.N.E.R.

A description of the engineering and colour-light signalling works involved, including the burrowing junction beyond Shenfield

THE Gidea Park to Shenfield widening, open to traffic since January 1, is a continuation of the widening from Romford to Romford Factory which was opened for traffic in 1931. The scheme now completed was outlined in THE RAILWAY GAZETTE of January 1, 1932, and provides for two additional tracks from 14 m. 10 c. to 20 m. 40 c., a distance of 6 miles 30 chains along the London to Colchester main line, and takes in Harold Wood, Brentwood and Shenfield stations. The work has been completed and the London & North Eastern Railway Company has now four tracks from Liverpool Street to Shenfield station where the railway forks, the main line continuing to Colchester and Ipswich, and a branch bearing south-eastwards to Southend. The four lines enable the company to run the local services on the local lines without interfering with the express services on the through lines. In this connection it has also been necessary to construct a single line of railway beyond Shenfield, about a mile and a half in length, known as the down Southend loop, which forms a burrowing junction so as to give access to the down Southend line without crossing the Colchester main lines on the level.

Engineering Features

Extensive alterations to bridges were rendered necessary. Two bridges over the railway to the east of Gidea Park station which were no longer required were removed entirely; three overbridges were reconstructed and the abutments of three others were underpinned. Ten underbridges were reconstructed and widened and three entirely new bridges built. Two public footpaths were diverted; one across the railway is now carried on a footbridge. The county and district authorities took the opportunity to widen and improve the roads crossing over and under the railway, and in this connection four underline and two over-bridges were rebuilt to meet their requirements. In all, 22 bridges were involved in the widening operations.

Owing to the great depth of the cutting between Brentwood and Shenfield, and to avoid extensive excavation in widening this cutting which is in treacherous soil, heavy concrete retaining walls on both sides of the railway have been constructed. These have a total length of 2½ miles and are in places 20 ft. high. The total quantity of excavation removed in the construction of the widening and new work amounts to 548,000 cu. yd.; of this quantity 367,000 cu. yd. were deposited to form new embankments and filling to platforms and in widening the approaches to bridges, the remainder being tipped to spoil. On account of the poor quality of the excavated material and where the land available to accommodate the widening was limited, some sections of the embankment had to be formed with ash filling, railed out by ballast train. The standard slope for both banks and cuttings is 3 to 1, but 1½ to 1 side slopes have been allowed for these ash-filled banks.

The stations had to be considerably altered and enlarged, and the platforms, on which a neat type of electric light has been provided, lengthened. New station offices have also been built, comprising compact and modern blocks of buildings, with glass-surrounded booking offices and cleverly arranged diagonal collapsible gates. New waiting rooms, lavatories, &c., have been erected on the platforms. At Shenfield there is a handsome block of new station buildings, the platform-level structures being carried on arching. In addition to these building alterations, the station yards have been remodelled and enlarged. A noticeable feature of the permanent way, which is ballasted with crushed flint laid over a 6-in. blanket of ashes, is the number of catch points necessary on this section of line, necessitated by the frequent automatic stop signals situated on the long gradients, averaging 1 in 100 for a considerable distance against down trains.

Some idea of the magnitude of the engineering works will be obtained from the list of total quantities below.

Excavation in cuttings and foundations	548,000 cu. yards.
Cement concrete in retaining walls and foundations	81,700 ,,
Steelwork in bridges	1,530 tons.
Drainage in all sizes of pipes	12½ miles.
Drainage in dry rubble	5½ ,,
Ditching	4 ,,
Permanent way	16½ ,,
Crushed flint ballast	34,250 cu. yards.
Ash ballast	34,800 ,,
Brickwork in engineering structures	7,730 ,,

Colour Light Signalling

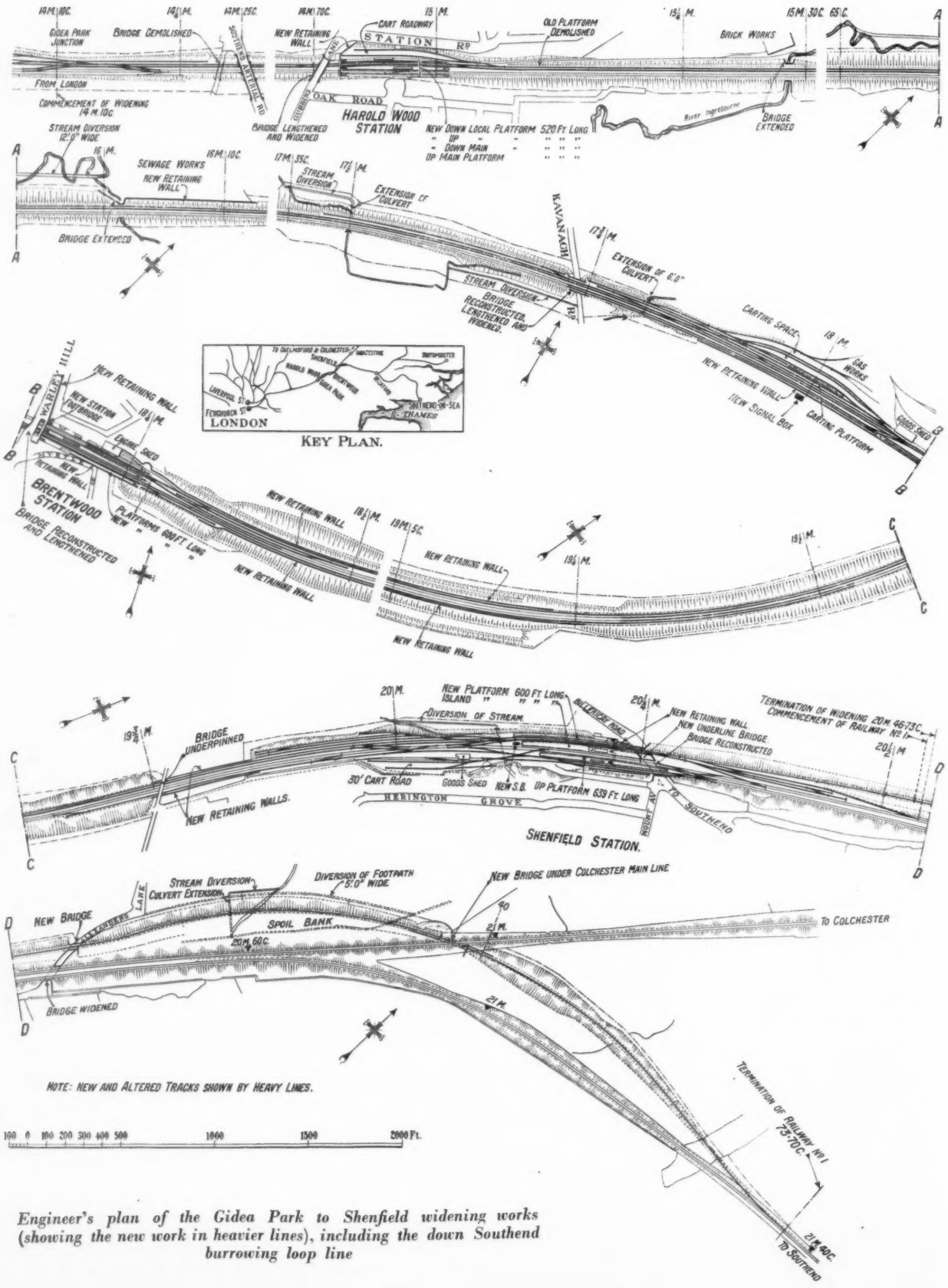
In order to obtain future economy and efficiency in working the main line as thus widened, a complete reorganisation of signalling has been undertaken throughout the section concerned, a distance of approximately 11 miles 40 chains, extending from Gidea Park on the west to about half a mile beyond Shenfield on the main line and to Billericay on the Southend branch on the east side. The scheme includes searchlight type colour light signals controlled by a.c. track circuits throughout. The construction of two new signal-boxes at Brentwood and Shenfield has enabled five existing boxes (Harold Wood, Brentwood Station, Brentwood Yard, Ingrave and Shenfield) to be dispensed with. The signalling between the interlockings at Gidea Park, Brentwood and Shenfield is automatic. In 1928, two automatic sections on the down line and one on the up line were introduced, thereby enabling a signal-box to be closed between Harold Wood and Brentwood, and this working is covered in the new scheme.

The installation provides for a traffic headway of 3 minutes and is laid out to suit future d.c. electrification, if and when installed, excepting that impedance bonds will have to be added to the track circuits when such electrification is required. The new boxes at Brentwood and Shenfield are equipped with 80 lever and 130 lever mechanical frames respectively, 12 sets of points controlled from these boxes beyond the manual distance of 350 yards being arranged to be worked electrically. The necessary searchlight signals within station limits are also controlled from these frames.

The signal levers are fitted with lever locks to provide the necessary normal locking and approach locking, automatic time releasing being provided for the latter. The signals are indicated in the cabins by small light indicators fitted above the signal levers, the indicators showing red when the signal is at danger and the word "off" when the signal is showing yellow, double yellow or green.

Point levers are electrically track locked in the normal and reverse positions by means of lever locks fitted to the levers and, where points are electrically operated, normal and reverse check locking is provided.

The searchlight signals give a high candle power beam



Engineer's plan of the Gidea Park to Shenfield widening works (showing the new work in heavier lines), including the down Southend burrowing loop line

from low wattage lamps, the colour displayed being produced by moving a small spectacle carrying red, yellow and green glass roundels in the line of the beam between the reflector and the lens system. The movement of the coloured spectacle is governed by an electromagnetic system which is controlled from the relative signal lever, where worked from a locking frame, or by the signal ahead and the associated track circuits. To provide sufficient warning of approach to a stop signal for high speed trains a fourth aspect is necessary, and to obtain this a separate lamp unit giving a yellow aspect is fixed above the searchlight unit. This separate unit projects the same beam candle power as the searchlight unit and is lighted when the signal ahead is showing a single yellow aspect. The sequence of aspects behind a train is red, yellow, double yellow, green.

The point machines are of d.c. type, the operating energy converted by metal rectifiers to charge 110-v. floating batteries one of which is situated at each signal cabin. Each point machine can be operated by hand crank, the insertion of which breaks down the operating circuit. In addition, the crank handles are interlocked with circuit controllers housed in the signal boxes, so that to operate a machine by crank handle will necessitate the withdrawal of the crank handle from the circuit controller, which breaks down the necessary signal controls. Another interesting feature, is that each machine can be cranked only by the handle appertaining to it. Constant point indication is given over the point levers by means of indicators which show the letters " N " (normal) and " R " (reverse).

The signal-boxes at Gidea Park, Brentwood and Shenfield are equipped with illuminated track diagrams by means of which the movement of trains can be observed. Conditions of site and space have necessitated tall and narrow signal-boxes at certain stations. At Brentwood box, for instance, there are three floors and a store below them. On the first floor is the relay room, which houses among others some L.N.E.R. type time relays; on the second floor are the electric circuit breakers and locks and on the top floor are the mechanical frame, illuminated track diagram and other usual box equipment. Incidentally it may be remarked these boxes are equipped with the new L.N.E.R. standard type of lever number plate, which as well as being very distinctly marked, is detachable for marking or alteration. A feature of the outdoor work is the neat housing of all cables in galvanised iron casing, supported about 3 ft. above ground level upon iron stakes, except where they cross the line in wooden casing under the rails. They are all of the single " ITE " insulated type.

Train Describers

In addition to the illuminated diagrams a system of train describers is being installed. This system will enable the signalmen to be informed of the class of train approaching in correct sequence. Each signal cabin is being equipped with a transmitting and receiving instrument. When the class of train about to enter the section, say from Shenfield, is known, the signalman there will depress a key corresponding to the description of the train concerned. The operation of the key stores up a code of impulses in the apparatus and lights a check lamp beside the depressed key. When the train enters the station the indication code is automatically sent forward to Brentwood, where a lamp corresponding to the train description is lighted on the receiver at that box. This lamp also indicates whether the train described is the first, second or third in the section. When this operation takes place a lamp lights at the transmitting end which gives a visual record of the description of the last train to enter the section ahead.

When the train arrives at Brentwood the description is automatically cancelled from the receiver and the description of following trains are stepped forward so that the description of the second train in the section is shown as the first train.

When the train enters the section between Brentwood and Gidea Park the description is automatically sent forward to Gidea Park, where it is cancelled and retransmitted automatically to Romford, as described above. The description of trains terminating at a station are cancelled automatically and not retransmitted. A complete set of describers is provided for each line, and all operations, including trains changing over from local to through roads or *vice versa*, are carried out automatically with the exception of the original setting up of the description at the first transmitter.

The track circuits are of the double rail direct condenser fed type with double element a.c. vane relays, separate track transformers being used for each track circuit. All repeater relays and control relays are of the two position single element a.c. vane type, double element three position vane type being used for point detection. Welded steel apparatus cases are used at signal locations to house the necessary control apparatus.

Power Supply

An a.c. electric power supply from the Brentwood District Electric Light Company is given at a substation near Brentwood signal box. This supply is delivered at 415 v., 3-phase and stepped up to 600 v., 3-phase transmission for signal operation. It is essential in a signalling installation of this character that no interruption, or dark period due to interruption of the supply to the signalling mains should occur, and as no alternative outside source of supply is available, a specially designed automatic stand-by plant has been installed. This consists of a synchronous motor (continuously running on the supply and in parallel with the signalling mains) direct coupled to a d.c. generator normally trickle charging a battery of accumulators.

A National diesel engine is also provided, this unit being normally stationary, as it is required only as a stand-by. In the case of a supply failure a circuit breaker is operated which reverses the function of the above motor generator, *i.e.*, the battery drives the generator as a motor, which in turn drives the a.c. synchronous motor as an alternator, thus keeping the signalling mains energised. Also an alarm is sounded in the Brentwood box when the failure occurs.

At the same time the diesel engine is magnetically clutched to the above motor generator set and brought up to speed with the cylinders de-compressed. When a predetermined speed is reached compression takes place and the crude oil fuel is injected. The signalling load is now transferred from the battery to the engine, and the function of the d.c. machine is again reversed and the battery recharged from the machine by the power delivered from the engine. When the main supply is again available the power equipment is put back into normal operation by the maintainer, who is called by the sounding of the alarm described above.

Telephones

Telephone circuits of the omnibus type have been provided to enable enginemen to communicate with signalmen when detained at a signal. Circuits, varying from four to six telephones connected to a circuit, are installed on the through and local lines between Gidea Park and Shenfield. To obtain the attention of a signalman, enginemen turn a key which transmits a pre-determined number of impulses causing the number of the signal, from which the call has

been sent, to be displayed on an indicator in the signal box and ringing a bell for attention.

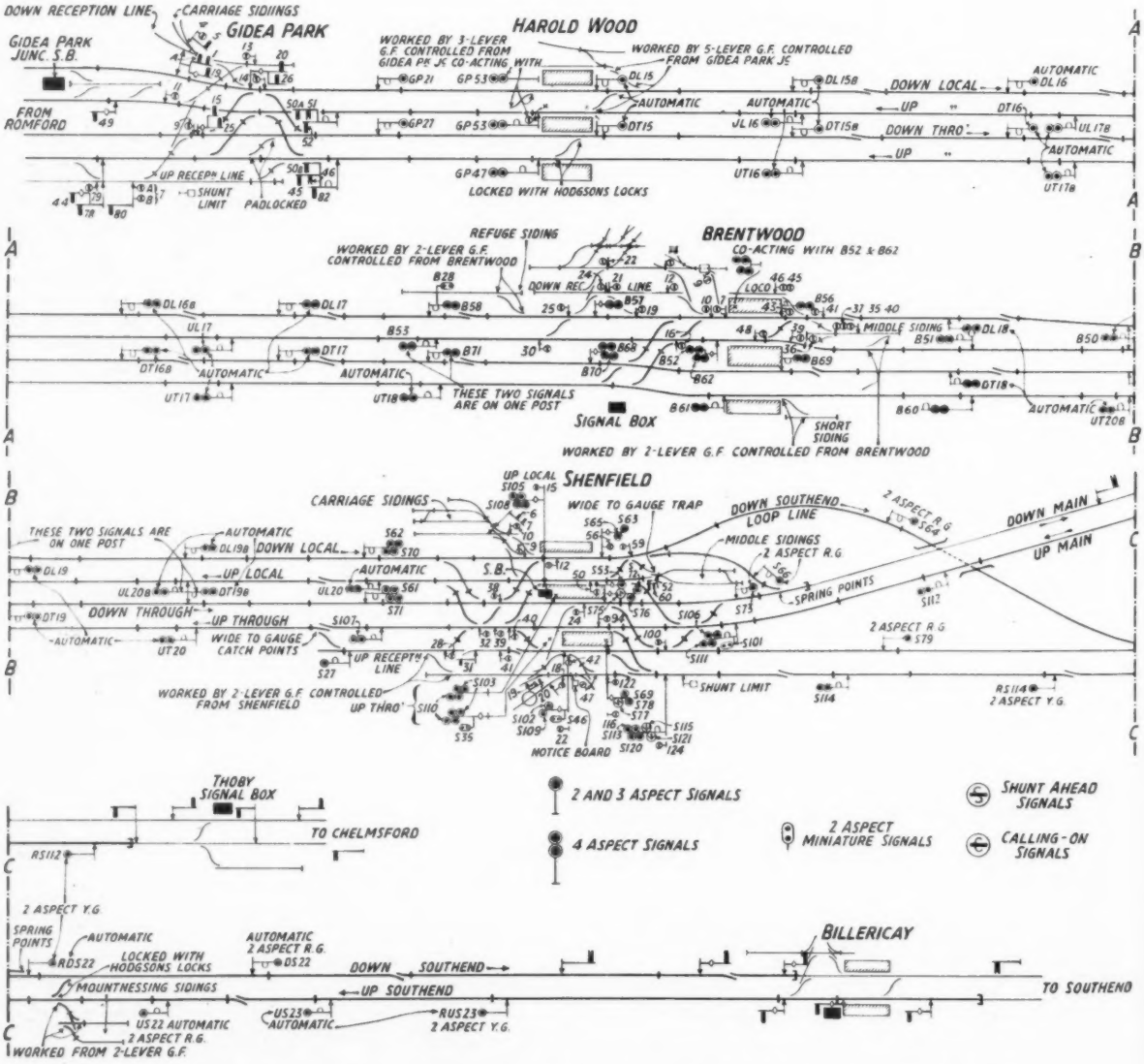
At the same time the circuit is engaged by the call transmitted, other telephones on the same circuit being "locked out," thereby allowing private conversation between any one signal location and the signalman concerned. Should an attempt be made to transmit a call from another telephone on the same circuit, an engaged signal is displayed to the caller, who must wait until the first conversation is completed. After a conversation the signalman presses a push which restores the circuit to normal in readiness for another call. No batteries or other source of supply of power are required at the signal posts nor is an earth connection necessary, the system operates from a 50-volt supply located at the signal box.

The whole of the work has been carried out to the instructions and designs of Mr. C. J. Brown, Engineer (Southern Area), L.N.E.R.; the general engineering works came under the immediate supervision of Mr. R. J. M. Inglis, Assistant Engineer (Construction), and the signalling under Mr. F. Downes, Signal and Telegraph Engineer. To these officers, and to Lt.-Col. H. H. Mauldin, Superintendent (Eastern Section), Southern Area, we are indebted for information used in the preparation of this article.

The following is a list of contractors:—

The general contractors for earthworks, bridges, platforms, retaining walls, &c., were Sir Robert McAlpine & Sons; for station buildings and platform paving, George Longden & Son of Neepsend, Sheffield.

The principal contractors for the supply of the signalling equipment were the General Railway Signal Co. Ltd., who supplied the searchlight signals, track relays and 110-v. point machines. The remainder of the signalling equipment was supplied by: Siemens & General Electric Railway Signal Co. Ltd. (electric locks, circuit breakers, rail contacts and train describers); Railway Signal Co. Ltd. (interlocking frame, Shenfield); Austinlite Limited (stand-by supply plant); Callender's Cable & Construction Co. Ltd., Macintosh Cable Co. Ltd., Craigpark Electric Cable Co. Ltd., Edison Swan Electric Co. Ltd. (cables and wires); Braby & Co. Ltd. (galvanised iron casing); D.P. Battery Co. Ltd. (accumulators for stand-by plant); Chloride Electrical Storage Co. Ltd. (accumulators for train describers); Crompton, Parkinson Limited (motor-generator set for stand-by); Standard Telephones & Cables Limited (selective telephones at signals).



Signalling diagram of the widened section from Gidea Park to Shenfield and onwards to Billericay

Shenfield station and bridge before widening

New station buildings and bridge at Shenfield

Four-aspect automatic signal on retaining wall with one of the selective telephones on an omnibus circuit

Up Southend line, four-aspect splitting signals at Shenfield with calling-on banner signals

Shenfield down through line, three-aspect splitting signals showing banner shunt signal below

Up through line, four-aspect splitting signals at Shenfield with miniature leading to reception line

Harold Wood station before widening and reconstruction

Harold Wood station as reconstructed, looking towards Shenfield from the overbridge

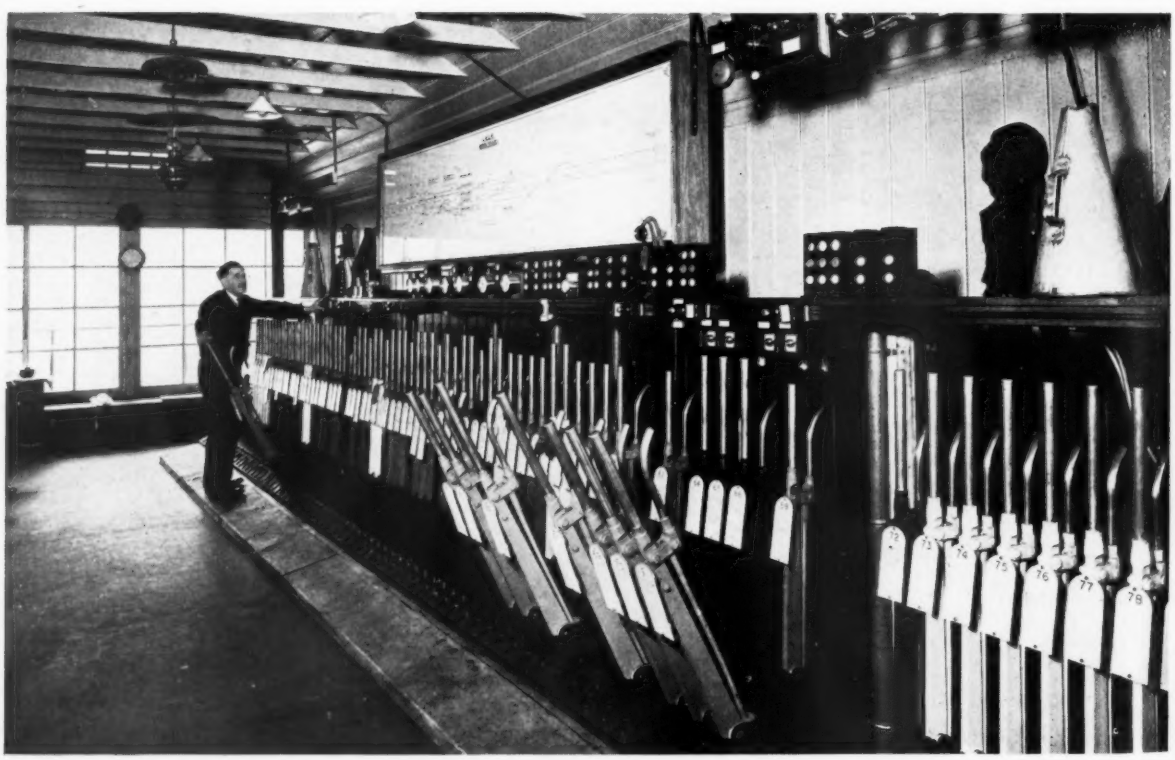
GIDEA PARK TO SHENFIELD

Seven-arch overbridge on Brentwood bank before widening

Same overbridge after widening and showing the concrete retaining walls

WIDENING, L.N.E.R. (*See page* 95)

Shenfield signal box



Interior of Brentwood signal box

GIDEA PARK TO SHENFIELD WIDENING, L.N.E.R. (*See page* 95)

RAILWAYS AND ROAD TRANSPORT SECTION

This section appears at four-weekly intervals. The next will be included in our issue of February 16

The New Act

ELSEWHERE in this issue there is given a resumé of the outstanding features of the Road and Rail Traffic Act, 1933, which with the exception of one or two sections came into operation on January 1. To some extent the information included goes beyond the wording of the Act as, thanks to the courtesy of the Minister of Transport, it has been possible to include details which will be embraced in the regulations made under the Act, although at the moment of writing they have not been officially issued. There is no secrecy about the matter, as in framing these regulations the Minister of Transport has sought the advice of organisations representative of those who will be concerned with their working and, of course, they embody the experience gained in the working of the licensing system for public service vehicles brought into force by the Road Traffic Act, 1930. The coming into operation of new legislation of this nature inevitably gives rise to irritation in some quarters but there is evidence that, so far as the Ministry of Transport is concerned, it will be administered with a reasonableness which should ensure its success. Incidentally, a sidelight on that is shown by the fixing of the fees so that an A licence will cost 15s. a year, a B licence £1 a year and a C licence but 2s. 6d. a year, those figures being based on 60,000 A, 40,000 B and 300,000 C licences, to produce the £130,000 which it is estimated will be required to meet the administration expenses. While the Act itself is reasonably clear there will be many who will be glad to have the assistance of a book like that which has been written by Mr. E. Gilbert Woodward which, besides giving notes and explanations of the different sections of the Act includes the relevant portions of other measures. There are, for example, the sections relating to restrictions on bridges and the hours of duty of drivers, which either repeal or modify parts of the Road Traffic Act while parts of the railway companies' Road Transport Acts of 1928 have also been repealed. From that viewpoint "Woodward's Road and Rail Traffic Act, 1933" (just published by Eyre & Spottiswoode at 16s.), should be indispensable.

Co-ordination in I.F.S.

TO those who have followed the various steps taken by the Great Southern Railways from time to time to secure co-ordination between road and rail services, both for passengers and goods, in the Irish Free State, the formal absorption on January 1 of the undertakings of the Irish Omnibus Co. Ltd. and John Wallis & Sons Ltd. came as no surprise. The Irish Omnibus Company was formed in Dublin in 1926 to take over the Clondalkin service and commenced operations with seven buses. Subsequently various other undertakings were absorbed until its operations covered almost the whole of the Free State, employing something like 300 vehicles on over 100 routes. In recent years the Great Southern Railways has taken an increasing interest in the concern, culminating in the control passing to the railway company. With regard to John Wallis & Sons Ltd., it may be recalled that this concern used to act as cartage agents to the Great Southern Railways, by whom it was acquired some two years ago when it became obvious that it would be necessary to build up a comprehensive town cartage service which should enable door-to-door delivery to be effected. The new scheme was described in detail in our issue of April 8, 1932. It is clear that the formal absorption of these two concerns foreshadows considerable developments, of which one indication is the reconstruction of the old Broadstone railway shops as a bus and lorry works. Following on the building of 36 bus bodies for the I.O.C. by the railway company, 30 single-deckers and 6 double-deckers, it is learned that the building programme at Inchicore for this year includes the building of 40 bus bodies of various types, double-deckers for the Cork City services, luxury touring coaches, and single-deck long distance buses. There is also the scheme of the Great Southern Railways to acquire a central site in Dublin, near O'Connell Bridge, on which to erect a modern omnibus station and garage. Practically all passenger road transport in the Irish Free State is now in the hands of the Great Southern Railways, the Great Northern Railway (Ireland), or the Dublin United Tramways Company.

One of the handy Karrier Cob three-wheeled tractors engaged on shunting work

Road and Rail Traffic Act, 1933

A brief résumé of the provisions with regard to the licensing of the various classes of vehicles and the regulation of the hours of drivers

AS recorded in THE RAILWAY GAZETTE, the machinery of the new licensing system for road goods vehicles under the Road and Rail Traffic Act, 1933, was brought into being on January 1 by an order of the Minister of Transport. The necessary regulations have been drawn up and, together with simple instructions as to procedure, they should be available within a few days. In both cases they follow the original draft forms circulated last November, but embody revisions made in the light of comments received.

At a conference in London last week the Minister of Transport explained that it had not yet been possible to set up the Transport Advisory Council, but he hoped that the constitution of the new council would be announced before the end of the month. The council will normally consist of 32 members, comprising representatives of local authorities, users of motor and horse-drawn vehicles and horses, pedestrians, cyclists, labour, owners of canals, harbours and coastwise shipping, and trading interests, while the railways are allotted three members. One of its first duties will be to assist the Minister in the drawing-up of the regulations regarding the keeping of records.

The three classes of licences provided for by the Act are to be known as the A or Public Carrier's licence; the B or Limited Carrier's licence; and the C or Private Carrier's licence. The A licence will run for two years and cost 30s. for each vehicle, entitling the holder to use the vehicle for the carriage of any class of goods for hire or reward, but not for any business of his own, other than that of a carrier of goods. The B licence runs for one year only and costs 20s. for each vehicle; the authorised vehicle may be used for the carriage of goods either for hire or reward or for the holder's own trade or business, but so far as concerns the carrying of other people's goods may be restricted as to the districts in which it is operated or as to the classes of goods to be carried. The C licence lasts for three years and costs 7s. 6d. for each vehicle, entitling the holder to use it for the carriage of goods in connection with his own trade or business, and normally he will be allowed to make a charge for collection or delivery. Only in specified cases will he be able to carry for hire or reward goods which belong to other persons; in certain circumstances a farmer operating under a C licence may make a charge for carrying the produce of another farmer.

Authorised vehicles under A and B licences, including those in the hiring margin, will carry circular certificates, of similar size to Road Fund licences, with the class indicated by a larger letter, A in red for public carrier and B in blue for the limited carrier. Tractors and trailers will have separate discs, those for the trailers having the large letter in outline. Vehicles in the hiring margin will have a large H printed in the style and colour of the class to which it belongs. C vehicles must bear the owner's name and postal address or the licence number.

April 1 is a vital date for those seeking A and B licences, as provided his application is in by then the public or limited carrier has a right to claim a licence for tonnage equivalent to that which he used for hire and reward at any time during the basic year ended March 31, 1933. If he is not now using so much tonnage he can claim for what he is using with a hiring margin to make up to the total to which he is entitled. It is not a transferable right. If a firm has changed its constitution, by conversion to a limited liability company or by a change in partnership since the basic year, the right to claim tonnage has gone.

Discretionary tonnage is the term used for tonnage over and above that for which an existing haulier has the right to claim, and it is also used for applications by businesses started since March, 1933. Other operators, whether by road or otherwise, have the right to object to applications for discretionary tonnage. As time must be allowed for the consideration of these applications, it is not intended to bring the Act into full operation before July 1 next.

The provisions of the Act enabling a certifying officer or vehicle examiner to prohibit the use of a goods vehicle which is unfit for service and involves risk of public safety are in operation, but there are certain arrangements to be made before the work can be effectively commenced and further notice will be given before any prohibition notices will be authorised. It is not intended that the officers shall stop vehicles in motion. The additional staff required in connection with these provisions, as well as those relating to drivers' hours and vehicle loads, is now being appointed. The Minister of Transport points out that these safety provisions, as they may be called, apply to all commercial vehicles, and that those who commit wilful or frequent breaches of them will be liable to lose their licences. The provisions regarding drivers' hours and overloading in the 1930 Act have not proved effective owing to the penalties being insufficient and the police being too busy with other duties. Now the examiners can see that the terms of the Act are not broken, and the possible loss of the licence should prevent breaches of the conditions more effectively than any fine could. The Minister of Transport attaches a great deal of importance to this matter of overworking drivers. He realises the difficulties which may face some distributing firms and has no intention of imposing onerous burdens on the industry, but the men have got to have their proper rest and to have it away from their vehicles, except in the case of the ½ hour break, after 5½ hours' driving, which may be spent as a passenger riding on the vehicle. He hopes that the scandal of the tired-out driver being forced to snatch a few hours' sleep with his head on the steering wheel will soon be a thing of the past. Under the new Act the driver's consecutive period of rest, 10 or 9 hours as the case may be, between spells of duty must not include any time during which he is bound to obey the directions of his employer or to remain on or near the vehicle, nor must they include time during which the vehicle is at a place where there are no reasonable facilities for the driver to rest away from the vehicle. No driver of a goods vehicle is to drive for a greater aggregate period of 11 hours between 2 a.m. on one day and 2 a.m. the next day, and in any period of 24 hours, from the time at which he commenced duty, a driver must be allowed 10 hours' rest, although this may be reduced to 9 hours if he gets 12 consecutive hours' rest in the next 24 hours.

Section 30 of the Act, dealing with weak bridges, is deferred for the present, and an article on this subject will be found on page 88. Part II of the Act, which among other things empowers the railway companies to enter into agreements with traders regarding special charges for merchandise, also came into operation on January 1, and a list of the first 37 applications submitted to the Railway Rates Tribunal for approval was given in THE RAILWAY GAZETTE of January 5.

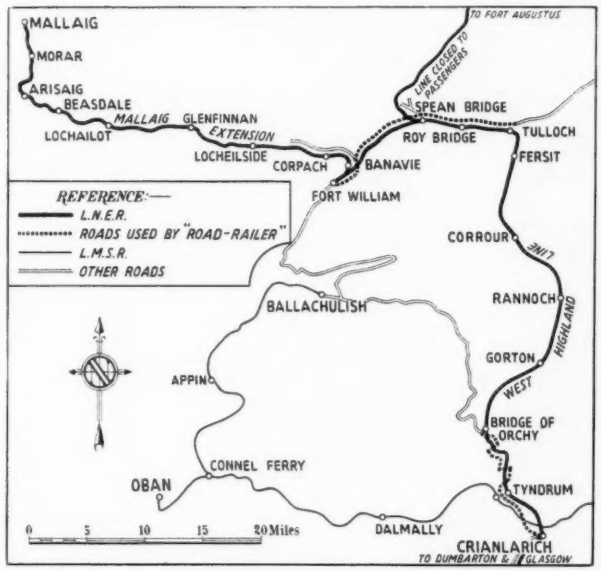
Road-Railer for Permanent Way Work

A new aid to economical maintenance to be introduced on the West Highland section of the London & North Eastern Railway

THE introduction of the motor trolley system of maintenance on British railways has enabled economies to be effected by reducing the travelling time of permanent way gangs who are moved from place to place by trolleys with the least possible expenditure of time, and without interfering with the ordinary goods and passenger traffic on the lines. In addition to this method, the Scottish Area Engineer's Department of the London & North Eastern Railway utilises road motors for conveying men and material to and from various points of the system where the density of traffic does not permit of motor trolley working. This mostly happens on lines where the block posts are considerable distances apart, and where the time taken by ordinary trains to clear the section may amount to as much as 40 or 50 minutes, particularly where the gradients are heavy, as, for instance, on the West Highland line.

The company's Engineer for Scotland, Mr. W. A. Fraser, has for some time past been considering the possibility of utilising a vehicle suitable for both road and rail travel on certain sections of the West Highland line, where for considerable stretches the road is fairly close to the railway, and at other points, notably between Bridge of Orchy and Tulloch, where the road is too far away to afford suitable access to the railway for the conveyance of men and material by road vehicles. The sketch map reproduced on this page shows the sections of railway and road referred to, and brings out the peculiar conditions.

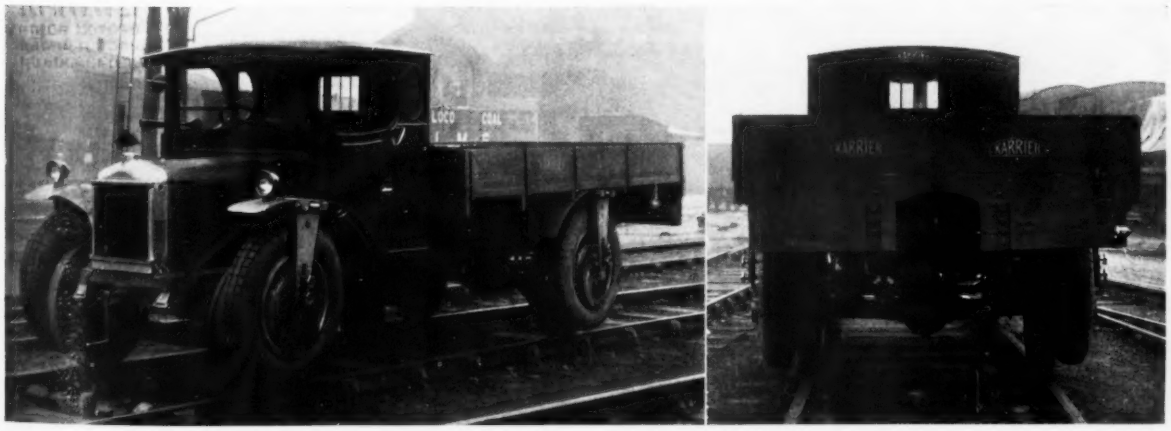
As a result of investigations it has been decided to order, as noted in THE RAILWAY GAZETTE of December 15 last, a road-rail motor of the 2-ton Karrier type, manufactured by Karriers Limited, Huddersfield, and it is hoped to bring the arrangement into force shortly. The vehicle, which is being fitted with a covered-in type of body, should enable the company to effect savings in ballast engine time, wages, and overtime by providing for the conveyance of men and material by road between Crianlarich and Bridge of Orchy, and between Tulloch and Fort William, as the public roads give convenient



Sketch map of the section of the West Highland branch of the L.N.E.R. over which the Road-Railer will work

access to these stretches of line. As regards the intervening section of line between Bridge of Orchy and Tulloch, extending to 33 miles, and the Mallaig branch, extending to 41 miles, where the roads are not suitable, the car will travel on the rails in the intervals between the ordinary train service, so as to lay down and pick up men and materials as required. It is estimated that the arrangement will result in a saving of 100 days per annum of ballast engine working in addition to savings in wages and overtime.

During the winter months, from October to April, the vehicle will be stationed at Crianlarich, and will use the



Two views showing the general arrangement of the Karrier Road-Railer vehicle to be employed by the L.N.E.R. on permanent way maintenance work

public road to Bridge of Orchy, picking up or dropping men and material by the way. At Bridge of Orchy it will be put on rail for travelling to points as far north as Tulloch, and again on the public road to Fort William, as will be seen from the map. During the summer months, from May to September, the vehicle will work on the Mallaig section, where the saving in ballast engine time and overtime on that line will be considerable.

The normal travelling speed on the rails is about 25 m.p.h. The two photographs reproduced show the road-rail vehicle on the railway, and show the road wheels in their raised position clear of the rails.

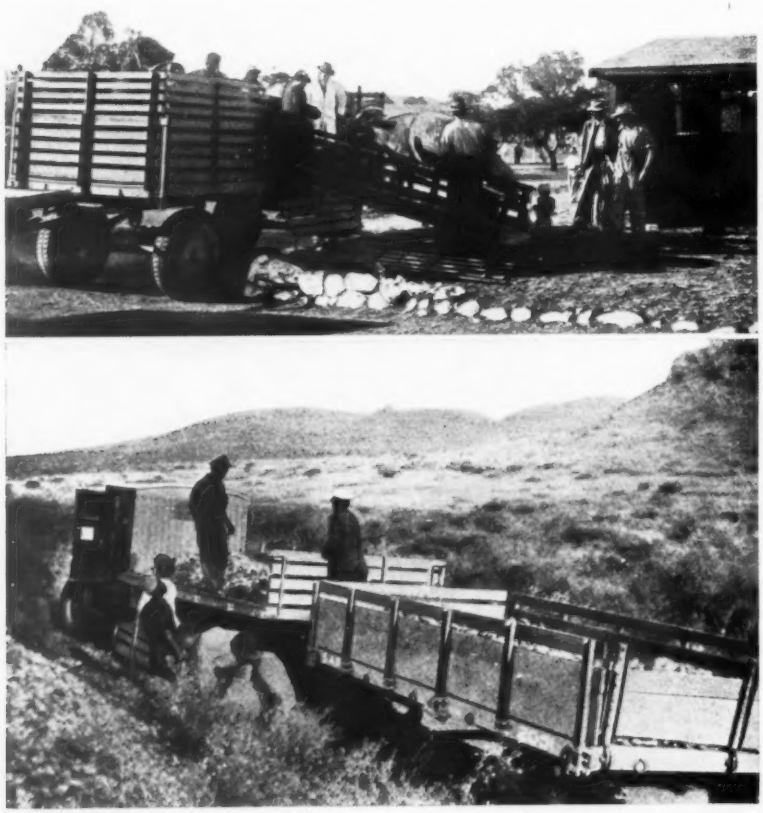
It may be recalled that in the original Road-Railer, built for the London Midland & Scottish Railway, the road wheels were raised when the vehicle went on the rails, and lowered when it went back to the road, by means of a double eccentric arrangement. This was illustrated and described in THE RAILWAY GAZETTE of January 23 and February 13, 1931. Subsequently the design was revised, the place of the eccentrics being taken by a sleeve or crank which enabled a larger range of lift to be secured. This pattern was illustrated and described in THE RAILWAY GAZETTE of July 29, 1932.

When it is desired to remove the vehicle from the rails the road wheels are dropped to their lowest position and held by a locking pin. The vehicle is then driven to a spot where a ramp has been made up to rail level and as it runs on to it the road wheels take the load and the flanged wheels are lifted clear of the rails leaving the vehicle free to be driven away. To return, the vehicle is driven on to the ramp with the flanged wheels directly above the rails; as it is driven forward from the ramp the rail wheels take charge leaving the road wheels suspended. They are then swung upwards out of the way and held by hanging brackets until the vehicle is called upon to return to the road.

Road Motor Services in South Africa

FROM the annual review of the General Manager of the South African Railways and Harbours it is clear that the road motor services are increasing their usefulness, and although the difficult trading conditions adversely affected the traffics, with the exception of cream, the services continued to show a profit. The attached table clearly shows the state of affairs as at March 31, 1933, as compared with the preceding twelve months. It is explained that the heavy decline in passenger traffic is attributable to the general depression and to the greater use of private motor cars. Goods traffic suffered a severe setback owing to the failure of the wheat crop in the Orange Free State, to a curtailment of purchases by country shopkeepers and to animal transport competition. The volume of cream traffic, in spite of the drought and the effects of foot and mouth disease restrictions, was a record. The total traffic in wheat was 28,294 tons, wool and mohair accounted for 12,020 tons, salt for 10,942 tons and citrus fruit for 9,318 tons.

With a view to attracting traffic and promoting the popularity of the services the standard tariffs were modified on several occasions. In areas where the volume of traffic justified such action and operating costs permitted, specially reduced rates were applied subject to full support being accorded the services, the rates charged being designed merely to cover working costs. A factor still militating against the application of lower tariffs is the absence of return loads. Where full or reasonable loads are available in both directions it is customary to apply very low rates. Although the services were originally inaugurated to foster the production of light agricultural commodities, the facilities have been extended during the past four years to cater for practically all classes of heavy and seasonal traffic, the conveyance of which is undertaken by large capacity lorries and trailers where road conditions permit.



The S.A.R. road motor services at work. (Above) Conveying horses from Bloemfontein show ground direct to farm. (Below) Loading manganese ore in Postmasburg district for conveyance to railhead

	1931–32	1932–33
Route mileage operated	10,601	10,036
Vehicles in service	508	496
Vehicle miles run	5,217,823	4,583,301
Petrol consumption, gals.	1,095,726	963,993
Traffic—		
Passengers	2,450,841	1,993,242
Goods, tons	273,520	226,991
Cream, gals.	944,780	979,960
Value of vehicles and equipment	£647,994	£628,530
Total revenue	£435,188	£378,336
,, working expenditure	£431,849	£373,568
Revenue per vehicle mile	20·0d.	19·8d.
Expenditure per vehicle mile	19·9d.	19·6d.

Unit for Light Roads Overseas

SOME particulars are now available regarding practical tests made with one of the road train units evolved by the Overseas Mechanical Transport Directing Committee for the carrying of an aggregate load of 15 tons.

In this case the tractor unit is an eight-wheel vehicle, made by Leyland Motors Limited, with all the axles driven by worm gear, the power being supplied by a Leyland six-cylinder 106 b.h.p. petrol engine. Having completed 5,500 miles in England the unit was shipped to the Gold Coast and between March 6 and October 28 it covered 8,050 miles. The unit was operated from Kumasi in Ashanti and Tamale in the Northern Territories until the Volta river rose too high, owing to the rains, to allow the unit to be ferried across. The 240 miles between Kumasi and Tamale includes hilly and undulating country, on lightly built roads having a surfacing of laterite gravel and occasional stretches of cotton soil embankment. None of the experimental features of the unit gave any trouble. The only repair work worthy of mention was owing to all the oil being lost during the first run for no apparent reason. The damage was made good and there was no recurrence. Ordinary commercial loads were handled, barrels of cement, pipes, agricultural produce, kola nuts, native passengers and livestock, as many as 150 sheep being carried on one journey.

Owing to not being able to obtain a full load regularly, the loads averaged only 8·6 tons in each direction, and owing to delays in collection and distribution it was possible to only average 237 miles a week. With petrol at 2s. 3d. per gallon the cost per ton mile, including depreciation, native wages, tyres, garage and supervision worked out at 5½d. per ton mile. The unit has been purchased by the Gold Coast Government.

The cross-country train loaded with passengers and freight in the Gold Coast

Road Transport Notes

In view of the changes in the Traffic Areas, as defined by the Road and Rail Traffic Act, it is timely that the Electrical Press Limited should have issued a revised edition of the map which is a feature of the Motor Transport Year Book. It is being sold in various forms, flat at 2s. per copy or mounted on linen, with rollers top and bottom, at 4s. per copy. It defines the areas in England, Wales and Scotland, and a map on a larger scale of the Metropolitan area is inset.

From Sternol Limited we have received the 1934 edition of the "My Car" diary, which enables a record of running and maintenance expenses to be kept conveniently. The book is the more valuable for the hints on tracing trouble, lists of motor terms in French and German, details of steep hills and practical information of that sort.

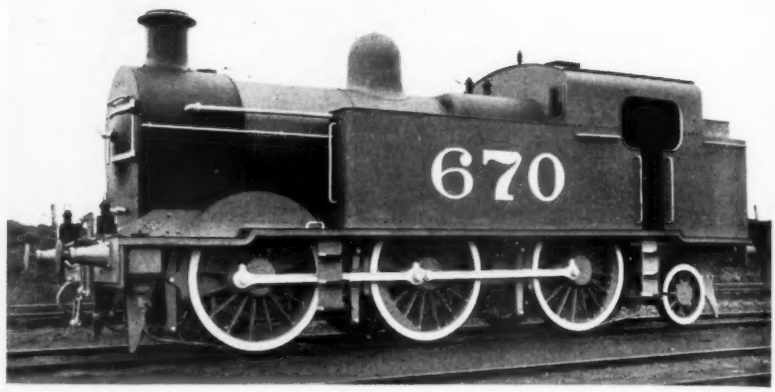
It will be recalled that early last year the Scottish Motor Traction Co. Ltd. placed its first large order with Leyland for more than 200 6-cylinder, 8-litre oil engines, followed by orders for over 50 oil-engined Tigers and a further 100 engines. Shortly after the release of the Leyland 4-cylinder unit, prior to the 1933 Show, the S.M.T. placed instructions for 185 Lions equipped with this new engine, bringing its fleet total of Leyland oil-engined vehicles to 550. We learn that in the twelve months during which the Leyland oil engines have been on sale, the weekly orders have averaged approximately 25, the total for the year being in excess of 1,200.

The Sentinel Waggon Works Limited announce that the Tyseley Works will be closed on January 31, and from then the manufacture of Garner vehicles will be carried out at the Sentinel Waggon Works, Shrewsbury. From now onwards repairs and the supply of spare parts will be carried on from the Sentinel Service depôt at 35, Windmill Lane, Smethwick. For London and the Home Counties there is the Garner repair and spare parts depôt at Wells Street, Gray's Inn Road, London, W.C.1.

It was recently announced by Mr. C. W. Reeve, the A.E.C. Chairman and Managing Director, that there are now nearly three hundred "London Transport" omnibuses equipped, or about to be equipped, with the A.E.C. oil engine. It is interesting to record, therefore, that as the outcome of this policy, A.E.C. has now received a further order for 97 oil driven chassis of the single and double deck type to be placed on the London streets during this year.

The first of a number of Armstrong-Saurer diesel-engined lorries for Australia left Liverpool last week. It is to be used on transport work in the gold mines of Kalgoorlie, Western Australia, and is a standard Armstrong-Saurer production, except that, in view of the fact that it will work in semi-tropical conditions, the cooling water capacity has been increased, and a patent oil cooler fitted to the sump. We are informed that both the shipping company and the insurance company agreed that the lorry could be shipped with its fuel tank filled with fuel oil, a testimony to the absence of fire risk with heavy oil fuel.

Right: New 0-6-2 tank locomotive, Great Southern Railways (Ireland), described on page 92



ADJUSTABLE CARRIAGE SEATS

Alterations have recently been made to the interior fittings of certain first-class, all-steel, carriages on the Paris, Lyons & Mediterranean Railway, as shown in the illustration on the left. The windows have been modified to ensure their being completely weatherproof under all conditions, and the interior decoration of the compartments has been made more attractive. The most important alteration has been to the seats, of which there are three a side, divided by arm and head rests. The position of the seats can be altered to suit each individual passenger by the simple operation of drawing them forward. That has been possible in most first-class compartments on the Continent previously, but the widening of the seat has not altered the slope of the back hitherto. In these improved P.L.M. carriages the back comes forward automatically as the seat is pulled out, thus giving it suitable inclination to the wider seat. The mechanism is perfectly simple and presumably inexpensive, nor should it require much in the way of maintenance nor be easily put out of gear. Each seat rests upon two metal supports, on which it can slide about 10 centimetres (4 in.), running on castors guided by grooves. The back of the seat and the lower part of the back are joined by trunnions. The upper half of the seat-back, being hinged to the compartment wall, falls into a slightly inclined position when the seat is drawn forward. Some of the re-designed stock is already in service and all carriages of this type will be modified within 18 months.

Opening of the New Greenisland Loop, L.M.S., N.C.C. (See page 112)

Left: The special train passing over the new viaduct after the opening ceremony. Right: The Duke of Abercorn, followed by Major Torrens, Major Malcolm Speir, and Sir Josiah Stamp, arriving at the viaduct for the opening ceremony

RAILWAY NEWS SECTION

PERSONAL

Mr. William Whitelaw, Chairman of the L.N.E.R., has consented to act as President of the Railway Convalescent Homes Institution for the year 1934.

Lord Herbert Scott, C.M.G., D.S.O., D.L., at a meeting of the Grand Council of the Federation of British Industries, on January 10, was nominated to succeed Sir George Macdonogh as President of the Federation for the coming year. Subject to confirmation, Lord Herbert Scott will enter upon his new duties early in April.

P.O.-MIDI REORGANISATION APPOINTMENTS

The joint administration of the Paris-Orleans and Midi Railways of France announces the following appointments as applying to the Direction Générale of the two systems together:—M. Henry-Gréard (Directeur de la Compagnie de Paris à Orleans), to be Directeur Général (General Manager); M. Gufflet (Directeur du Midi), to be Directeur Général Adjoint (Assistant General Manager); MM. de Brysson (Sous Directeur, P.O.) and Boqué (Sous Directeur Midi), to be Sous Directeurs; M. Epinay (Ing. en Chef du Matériel et de la Traction, P.O.), to be Ingénieur en Chef attaché à la Direction; and M. Frédault (Secrétaire du Conseil d'Administration, Secrétaire Général, P.O.), to be Secrétaire Général.

In the Exploitation (Operating or Traffic and Commercial) Department, M. Baillargues (Chef de l'Exploitation, P.O.) is to be Chef du Service de l'Exploitation (Chief Operating Superintendent) of the two lines, and MM. Bruneau (Chef de l'Exploitation Adjoint, Midi) and Berthelot (Sous Chef de l'Exploitation, P.O.) become Ingénieurs en Chef chargés du Service Commercial (Commercial Superintendents), for Tariffs and Traffic respectively.

In the Voie et Travaux (Chief Civil Engineer's) and Matériel et Traction (Chief Mechanical Engineer's) Departments, M. Balling (Ing.-en-Chef de la Voie et des Travaux, P.O.) is Chef du Service de la Voie et des Travaux (Chief Civil Engineer) of both railways, and M. Bachellery (Ing.-en-Chef M. et T., Midi) becomes Chef du Service du Matériel et de la Traction (Chief Mechanical Engineer).

Mr. G. L. Kirkpatrick, General Manager, has been appointed Managing Director of Bruce Peebles & Co. Ltd.

Mr. D. H. Elias, who, as announced in THE RAILWAY GAZETTE of October 13, has been appointed General Manager of the Federated Malay States Railways, joined the Great Western Railway in 1899, serving at Poplar, Smithfield, and in the London District Goods Manager's Office. In 1902 he proceeded to South Africa and entered the service of the Imperial Military Railways, which subsequently became the Central South African Railways, and eventually the South African Railways and Harbours Service. After 20 years' service in the Transportation Department of these administrations, he accepted the post of Traffic Manager, Kenya & Uganda Railway, in 1922, and was afterwards promoted to Superintendent of the Line. Under him the reorganisation scheme was carried out in which were combined the Traffic and Running Sections into a Transportation Department. In 1925 Mr. Elias was transferred to the Nigerian Railway, as Superintendent of the Line, and introduced the Transportation system there also. He proceeded to the Federated Malay States as Deputy General Manager of the F.M.S. Railways in 1931, and there again introduced the Divisional System, Transportation Department. He was promoted to General Manager, F.M.S. Railways, in May last. During the War he served from September, 1914, to August, 1919, as a trooper in the South African Mounted Rifles (German South West African Campaign), and as a Lieutenant and Captain in the South African Infantry Brigade (France), and was awarded the M.C.

Mr. D. H. Elias, M.C.,
Appointed General Manager, Federated Malay States Railways

Mr. A. S. Rinder has been elected a Director of Metropolitan-Vickers Electrical Co. Ltd.

We regret to announce the death of Mr. Samuel J. Smartt, Chief Cashier of the Great Southern Railways, Ireland, on January 4, aged 52 years. Mr. Smartt joined the former Midland Great Western Railway in 1900, at North Wall, and was transferred to the Paymaster's Office at Broadstone in 1901. There he rose to become Paymaster in 1913 and subsequently Cashier and Paymaster when the posts were amalgamated. In 1925 Mr. Smartt was appointed Assistant Cashier and Paymaster, Great Southern Railways, eventually rising to the head of that department.

Mr. Harold Torre, Chief of the Publicity Department, Central Argentine Railway, retired from that position, on pension, at the end of December, after nearly 40 years' railway service in Argentina. Mr. Torre, who was born in London, commenced his long railway career in the old Buenos Ayres & Ensenada Railway (since absorbed in the B.A.G.S. system), with which his father, the late Mr. W. C. K. Torre, was connected for many years. At first employed in the General Manager's Office, he subsequently gained experience in the Traffic, Chief Engineer's and Chief Mechanical Engineer's Departments. In March, 1903, Mr. Torre joined the Central Argentine Railway as a clerk in the Traffic Manager's Office. In 1906 he was promoted to be Chief of the Traffic Accounts Office, and later took over the Statistics Section as well, having meanwhile gained outside experience as Traffic Inspector at Victoria and San Martin. In 1913 a Publicity Section was created to deal with railway advertising and general propaganda in all its branches, Mr. Torre being appointed its first Chief, and in 1922 an independent Publicity Department, directly under the General

Mr. Harold Torre,

Chief of the Publicity Department, Central Argentine Railway, 1913-33

Mr. J. A. Meelboom,

Appointed Assistant to the General Manager, Central Argentine Railway

Mr. R. Flack,

Appointed Chief Accountant, Central Argentine Railway

Manager, was formed under Mr. Torre's personal direction. The work of the Department included the production of the company's Staff Magazine, of which Mr. Torre was the Editor for 18 years. In addition to his railway duties, Mr. Torre has taken an active part in public life in various important capacities. During the period of the War—1914 to 1919—he was Honorary Secretary of the British Patriotic Committee in Buenos Aires, for which services he was publicly thanked by the then British Minister, Sir Reginald Tower, K.C.M.G. During the visit to Buenos Aires of Lord D'Abernon's Mission in 1929, Mr. Torre was attached to it as honorary interpreter, his services in this connection receiving tangible recognition by the presentation of a gold cigarette case. As Director of Publicity in connection with the British Empire Trade Exhibition at Buenos Aires in 1931, Mr. Torre was responsible for the advertising campaign in Argentina and the adjoining republics, which was such an important factor in the success of the Fair.

Elliott] *[& Fry*

The late Mr. James R. Chapman,

Formerly Chief Construction Engineer, Underground Electric Railways Company

Mr. G. Ramoni, late Assistant to the Chief of the Statistical Department, has been appointed to succeed Mr. Harold Torre as Chief of the Publicity Department. After a short period in the London Office of the Company, Mr. Ramoni proceeded to Buenos Aires under contract in 1920, being allotted a post in the Traffic Department. After three years' outside experience in traffic working he was, in 1923, brought into the Administration and given a responsible position in the Statistical Department, of which he was, in January, 1926, appointed Chief Assistant.

Mr. John Adam Meelboom, Chief Accountant to the Central Argentine Railway since 1908, has been appointed Assistant to the General Manager on special subjects as from January 1. Born in Amsterdam of English parentage, Mr. Meelboom was educated at Clapham and the City of London School. He entered business life in the publishing firm of Griffith, Farran & Co., and became Secretary to the Managing Partner. In 1890 he was articled to Mr. T. A. Welton, Chartered Accountant, passing with honours all the qualifying examinations for a Chartered Accountant. He was first in the United Kingdom in the Society of Arts Book-keeping Examinations, receiving the special prize given by the London Chamber of Commerce. On admission to the Institute of Chartered Accountants in 1898, he continued with the firm of Welton, Jones & Co. (afterwards amalgamated with Messrs. Deloitte, Plender, Griffiths & Co.) in charge of various railway, bank and commercial audits conducted by them, as well as of special investigations. In 1902 he was appointed Assistant Accountant of the B.A. Great Southern Railway, but in 1905 he went to the Cuban Central Railway to reorganise its Accountancy and Stores Book-keeping systems. On the conclusion of this work in 1908, he returned to Argentina as Chief Accountant of the Central Argentine Railway, his tenure of this responsible post being marked by important reorganisation schemes and the institution of various new systems of departmental accounts. He is the author of "Bank Book-keeping

Mr. Evan Evans,

Appointed General Superintendent, London Passenger Transport railways

and Accounts," the textbook required by the Institute of Bankers (England) for their examinations, which has gone through several editions. Before proceeding to Buenos Aires, he took a prominent part in London Municipal life. He is a Member of the Institute of Transport.

Mr. Robert Flack has been appointed Chief Accountant of the Central Argentine Railway from January 1, replacing Mr. John A. Meelboom. Born in Belfast, Mr. Flack was educated at the Royal Academical Institution in that City. He received his preliminary training with the Midland Railway (Northern Counties Committee), serving first in the General Stores Department, and afterwards in the Accountant's Department. During the War he served in the Railway Corps in France, and after demobilisation in 1918, was appointed Government Investigator of Railway Accounts under the British Government's guarantee of railway receipts in Ireland. In 1919 he was lent by the Midland Railway to act as Manager and Secretary of a small railway in the North of Ireland. In December of the same year he was appointed to the Finance Department of the Ministry of Transport in London as Government Investigator of Railway Accounts under the guarantee of railway receipts. In January, 1924, Mr. Flack joined the staff of Messrs. Deloitte, Plender, Griffiths & Co., Chartered Accountants, being mainly engaged on the auditing of the accounts of the home and foreign railways, including the Central Argentine. In 1931 he was appointed Chief Assistant to the Chief Accountant of that railway. In 1923 he became a Barrister-at-Law of the English Bar, being called at the Inner Temple, obtaining in 1930 the Degree of Master of Laws of the University of London. He is an Associate Member of the Institute of Transport.

Mr. Evan Evans, who, as announced in THE RAILWAY GAZETTE of January 12, has been appointed General Superintendent, London Passenger Transport railways, started his career as an indentured traffic apprentice in the General Manager's Office, Belfast & Northern Counties Railway. In 1906 he came to the office of Sir George Gibb, then Managing Director of the Underground Electric Railways Company, and was appointed Chief Clerk to the Superintendent of the Line, Underground group, in 1910. He was subsequently appointed Assistant Superintendent of the Line. From 1925-28 his services were loaned to the Postmaster-General, as Manager of the Post Office tube. Resuming his former position on the "Underground," he was selected with two engineering colleagues to proceed to Russia and advise the Soviet in connection with the Moscow Underground scheme. When the L.P.T.B. came into being, Mr. Evan Evans became Indoor Superintendent, Railways.

We learn with regret of the death at Santa Barbara, California, on January 11, of Mr. James R. Chapman, formerly Chief Construction Engineer of the Underground Electric Railways Company of London. Mr. Chapman came to London in 1900 with the late Mr. Charles Tyson Yerkes, Mr. Z. E. Knapp, and Mr. W. E. Mandelick, for the purpose of converting the Metropolitan District Railway from steam to electric traction, and for the building of the new tube railways. Under Mr. Chapman's direction the Great Northern Piccadilly & Brompton line from Hammersmith to Finsbury Park, and the Charing Cross Euston & Hampstead line from Charing Cross to Golders Green and Highgate were constructed, while the derelict works of the Baker Street and Waterloo line were acquired and completed. As Chief Construction Engineer of the company he was also responsible for the building of Lots Road power station, the first all-turbine station in the world. Mr. Chapman, who was also a director of the Metropolitan District Railway from 1907 onwards, retired in 1910 on the completion of his great task of providing London with an underground electric railway system, the early works of which remain as a tribute to his skill. On the opposite page we reproduce a portrait of Mr. Chapman taken at the time of his retirement from London; he died at the age of 83.

At the usual meeting of the Traffic Officers' Committee, held at the Irish Railway Clearing House, Dublin, on December 19, 1933, Mr. J. Lockhart, Traffic Manager, Great Northern Railway (Ireland), was unanimously re-elected Chairman for the year 1934.

The Secretary of State for the Colonies has recently made the following appointments:—

Mr. J. E. S. Bodger (District Engineer) to be Assistant Engineer, Way and Works, Ceylon Government Railway.

Mr. G. E. Samuels, B.A., B.A.I. (District Engineer), to be Deputy Engineer, Way and Works, Ceylon Government Railway.

Mr. W. J. Young (District Stores Superintendent) to be Assistant Stores Superintendent, Kenya & Uganda Railways.

We regret to record the recent death of Mr. C. E. Straker, Chairman of R. & W. Hawthorn, Leslie & Co. Ltd.

Major the Hon. J. J. Astor, M.P., Director of the G.W.R., has been appointed to the Board of Hambros Bank.

Señor Miguel Martin Garcia-Varo, who has for some time been Engineer Assistant to the General Manager of the Andaluces Railway Company, has now been appointed by the Board of Directors to be Assistant Manager at the headquarters in Malaga.

South American Railway Directors' Movements

Mr. J. M. Eddy, C.B.E., a Director of the Buenos Ayres Great Southern Railway, arrived in Buenos Aires on a business visit on November 24.

Brig.-General G. H. Harrisson, C.M.G., D.S.O., a Director of the Entre Rios and Argentine North-Eastern Railways, also arrived on the same date on a visit of inspection to these companies.

The Rt. Hon. the Lord Forres, a Director of the Central Argentine Railway and other South American companies, who has been on a business visit to Buenos Aires of several weeks' duration, left for Chile on December 12. Lord Forres was received in audience by the President of the Argentine Republic at Government House. His Lordship was introduced by the Chairman of the Local Board (Engineer Atanasio Iturbe), and was also accompanied by Dr. Augustín Nicolás Matienzo, the new Local Director of the Company.

Mr. W. Howard-Williams, C.B.E., another Central Argentine Director, who has been in Buenos Aires since September last on business connected with the railway, returned to England on November 29.

We regret to note the recent death of Mr. R. E. Medcalf, sometime District Superintendent Great Southern & Western Railway (Ireland). He retired on the amalgamation of the Free State railways.

South African Railway Staff Changes

Mr. H. Cheadle, System Manager, Pretoria, has been appointed Chief Traffic Manager. Mr. E. R. Carney has taken his place at Pretoria and Mr. C. M. Hoffe has been appointed System Manager at East London. Mr. J. A. C. Jones succeeds Mr. W. Marshall as Chief Accountant.

Indian Railway Staff Changes

Mr. J. Williamson, Agent of the B. & N.W. Railway, has been elected President of the Indian Railway Conference Association for the year 1934-35.

Mr. C. Eyers, Deputy Chief Operating Superintendent (Running), E.I.R., has been granted 18 months' leave preparatory to retirement, as from September 28. Mr. N. A. Shove, Deputy (Power), has been appointed in his place, and Mr. H. G. Jones has been appointed Deputy Chief Operating Superintendent (Power).

Mr. A. R. Gundry, on return from leave, resumed duty as Chief Electrical Engineer, E.I.R., on October 4.

Messrs. E. G. Rodwell and P. Hackforth, on return from leave, resumed duty as Deputy Chief Engineers, E.I.R., as from September 30.

Railway Improvements in Northern Ireland

Opening of new Greenisland loop by the Governor of Northern Ireland

(*See illustrations on page* 108)

On Wednesday, January 17, the new Greenisland loop line on the Northern Counties Section of the London Midland & Scottish Railway was opened by the Duke of Abercorn, Governor of Northern Ireland. The importance of this new loop line is apparent from a glance at the map, for it enables trains to run direct between Belfast and the north without the reversal at Greenisland hitherto necessary. Other advantages are referred to on page 85.

Although we have already described the new line in THE RAILWAY GAZETTE of June 16, 1933, we may here repeat that the most notable features of the works are two reinforced concrete viaducts over Valentine's Glen, one, 630 ft. long, carrying the new main line, the other, 400 ft. long, carrying the down Larne line, which, after leaving the main line beyond Whiteabbey, burrows under it. The former is the largest reinforced concrete railway viaduct in the British Isles, and altogether in it and in the lesser viaduct 32,000 tons of concrete reinforced with 700 tons of steel were used. In addition to the viaducts, eight new reinforced concrete bridges were built, enabling four level crossings to be abolished. Earthworks were designed so that the excavation balanced the fill, and amounted to 230,000 cu. yd. The colour light signalling installed at the York Road terminus of the line at Belfast some years ago and described in THE RAILWAY GAZETTE of September 23, 1927, has been extended to Greenisland, where a new signal-box has been erected, and includes the whole triangle of lines. The signalling is now automatic between Belfast and Bleach Green junction, just beyond Whiteabbey, where the Larne line forks from the main north line, and all signal-boxes between Belfast and Greenisland, 6¾ miles, have been closed. The total expenditure on the new work was nearly £250,000, towards which the Government of Northern Ireland contributed over £80,000 as an unemployment relief grant. The general layout, together with the scheme of construction, was prepared by Mr. W. K. Wallace, M.Inst.C.E., the then Engineer of the Northern Counties Committee and now Chief Engineer of the London Midland & Scottish Railway. Mr. D. McLellan, M.Inst.C.E., the late Divisional Engineer (Scotland) of the London Midland & Scottish Railway, acted as Consulting Engineer during the period of construction. Mr. R. L. M'Ilmoyle, A.M.Inst.C.E., was directly responsible for the whole of the work, and Mr. A. N. Scott was Resident Engineer, assisted by Mr. A. Davidson as Inspector.

Prior to departure from Belfast by special train for the opening ceremony at the site, the Governor of Northern Ireland was received by Major J. A. W. O. Torrens, Chairman of the Northern Counties Committee, who presented the following Directors and Officers:—

Mr. Charles Booth, Lord Massereene, Sir Dudley M'Corkell, Sir Hugh Arthur Rose, Mr. Thomas Somerset, Mr. Frank Tatlow, Sir Josiah Stamp, Sir Harold Hartley, Mr. W. A. Stanier, Mr. W. K. Wallace, Major Malcolm Speir, Messrs. T. L. Smith. W. Getty, R. H. Murphy, M. W. Patrick, and R. L. M'Ilmoyle.

On arrival at Valentine's Glen, Major Malcolm Speir, Manager and Secretary of the Northern Counties Committee, read an address to the Duke of Abercorn. After expressing appreciation of the honour conferred by the presence of the Governor, Major Speir referred to the activities of the Northern Counties Committee in catering for the transport needs of the population. Not only had the railway side of the undertaking been developed, but the Committee was now one of the largest operators of road motor transport in Northern Ireland. He mentioned the benefits which would accrue from the new line and the improved signalling, and added that, with the recent modernisation of the company's hotel at Portrush and the re-modelling of the golf course there, he felt confident of an increase of traffic as a result.

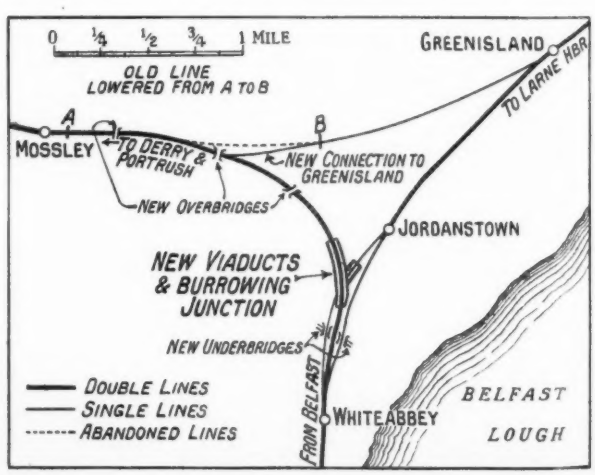
Major Torrens then asked the Duke to accept the illuminated address, and His Grace in reply returned thanks for the compliment and congratulated the railway company on its enterprise. Mr. R. L. M'Ilmoyle, Civil Engineer of the N.C.C., then handed a knife to His Grace, who cut a silver cord, declaring the line open, to the accompaniment of cheers from the large crowd, which included most of the men employed on the work, who had been given a half-holiday with pay and refreshments.

The guests then rejoined the special train, which was hauled by one of the new 2-6-0 locomotives, No. 90, appropriately named *Duke of Abercorn*, and were conveyed over the new loop to Portrush, where the Town Clerk delivered an address of welcome to the Governor, and the party was entertained to lunch at the Northern Counties Hotel.

Major Torrens, from the chair, proposed the toast of "The Governor of Northern Ireland," and the Duke of Abercorn, responding, expressed his pleasure at being present and congratulated the railway company and its engineers on the excellence of their work and the new facilities provided. Not only was the new viaduct the largest of its kind in the British Isles, but it was a beautiful addition to the landscape.

Lord Craigavon, Premier of Northern Ireland, proposed the toast of "The

Left: Map of N.C.C. lines; below: diagram of new loop



London Midland & Scottish Railway," and paid a tribute to the work of Mr. Cotton, who, when he was manager of the old Belfast & Northern Counties Railway, laid the solid foundations on which subsequent managers, including Major Speir, had built and developed a transport system which was justly popular among the people of Ulster. He coupled with the toast the name of Sir Josiah Stamp, whose fame was world-wide and in whose capable hands he felt the future of the L.M.S. was safe.

Sir Josiah Stamp, in response, referred to his previous association with Ulster since he acted nearly 30 years ago in the Inland Revenue Department in pursuits he hoped were now forgotten and forgiven, and alluded to his experience as one of the Arbitration Tribunal in the financial relations with the Central Government. He said that as Chairman of the L.M.S. he represented the largest privately-owned corporation in the world, with 450 millions of capital expenditure, and employees and their families numbering nearly a million. It was the largest hotel owner in Europe and had a fleet of 55 steamers maintaining many cross-channel services. It owned many docks and canals, and 2,000 motor vehicles.

Thirty years ago the constituent Midland Railway acquired the old Belfast & Northern Counties Railway, and Sir Josiah paid a tribute to the Committee of Management who so ably conducted its affairs. This Belfast & Northern Counties Railway, 86 years old, had a long tradition of public service and progressive pioneer activities. He instanced the introduction of third class accommodation in 1862, and road motor transport in 1899, now developed into a complete transport service with 180 vehicles.

The Greenisland loop line had been thought about for many years, but now, as an accomplished fact, it was a double success, both for relieving unemployment and improving transport. It was a gesture of faith in the future of railways at a difficult time in their history. He was grateful to the Government for all that had been done and also to the Governor for his interest that day. He referred to the improvement of the Portrush Hotel and the golf links, and said that every effort would be made to attract more visitors.

Sir Josiah dealt cautiously but optimistically with the prospect of general recovery and of railways in particular and paid a tribute to the spirit and success of the Northern Ireland Government.

The company included, beside those already mentioned, the following:—

Mr. G. H. Loftus Allen, Rt. Hon. J. M. Andrews, Rt. Hon. A. B. Babington, Rt. Hon. Sir R. Dawson Bates, Rt. Hon. Sir Basil Brooke, Mr. W. C. Brudenell, Mr. H. J. Clark, Sir Lingard Goulding, Sir Crawford M'Cullagh, Sir Basil McFarland, Messrs. F. J. Martin, W. McC. Martin, W. F. Minnis, Rt. Hon. Thomas Moles, Mr. W. Maxwell Scott Moore, Rt. Hon. H. M. Pollock, Messrs. Thomas Richardson, F. L. Smith, J. B. Stephens, N. Taylor, Rt. Hon. Sir William Turner, Messrs. Arthur Watts and Norman Wilkinson.

RAILWAY AND OTHER MEETINGS

ROHILKUND & KUMAON RAILWAY CO. LTD.

The ordinary general meeting of shareholders of the Rohilkund & Kumaon Railway Co. Ltd. was held at the company's offices, Gresham House, Old Broad Street, London, E.C., on Tuesday, January 16, Sir Henry P. Burt, K.C.I.E., C.B.E., Chairman and Managing Director, presiding.

The Chairman expressed his regret that the Secretary, Lieut.-Colonel W. R. Izat, was not with them that day; he had had to proceed to Scotland owing to the sudden death of his mother. He was sure they sympathised with him in his bereavement. In his absence he would call upon the Assistant Secretary to read the notice of the meeting and the auditors' report. This having been done,

The Chairman, in moving the adoption of the report and accounts, said it was satisfactory to note that although the severe world-wide depression had only partially lifted, the gross earnings of the joint undertaking had not only not shown any falling off, but compared with those of the previous year ended September, 1932, actually showed an increase of Rs. 1,13,721, which justified his prediction when he last addressed them that the prospects for the year with which they were now dealing would not be unsatisfactory. A reference to the balance sheet would show the strength of their financial position, seeing that their reserve fund and their carry forward together were nearly equivalent to their ordinary share capital of £400,000, but it must be remembered in this connection that part of their reserve fund had been invested in their capital overdraft. He was sure the shareholders would agree that it was a matter for congratulation that the company had been able to withstand so satisfactorily the financial crisis through which the world had recently passed.

The working expenses of the joint undertaking showed a slight increase of Rs. 19,402, but owing to the increase in gross earnings the percentage of working expenses to gross earnings had fallen from 48·15 to 47·61 which could be considered satisfactory.

The net revenue account on page 18 of the report showed that the company's share of the net earnings of the joint undertaking amounted to £112,837 or an increase of £1,863, and after adding thereto their share of surplus profits of the Lucknow Bareilly State Railway £8,642, and the gain by exchange on remittances to London £568, the net receipts amounted to £122,047 against £119,768 for the year 1932, an increase of £2,279.

After making necessary adjustments on account of income tax, payments of debenture interest, preference and interim dividends, and providing £6,200 for the Secretary of State's share of surplus profits, the amount to be dealt with that day was £40,155 12s. 7d.

Out of this sum they proposed to pay a final dividend of 6 per cent. with a bonus of 3 per cent., amounting to £31,050. This, together with the interim dividend and bonus of 6 per cent. already paid, made the total distribution for the year 15 per cent., or the same as the last two years; these annual distributions had been provided during two of these three years from current resources. The carry forward to next year would then be £9,105 12s. 7d. or only £1,966 15s. 8d. less than last year.

Nothing of any outstanding importance had occurred during the year in connection with their business in India, but he must refer to a matter which he had no doubt had attracted a good deal of their attention during the last few months. In addressing them in 1931 he said that the position in which their company might be placed under such new constitution as might be decided upon for India would require the most careful consideration of the board to secure that the rights which they enjoy under their contracts with the Secretary of State should be fully preserved. It would be recalled that proposals of His Majesty's Government for dealing with the new Indian Constitution were put forward for the consideration of the Joint Parliamentary Committee in a document which had become known as the White Paper. In that paper it was stated, in referring to railways, that while giving the Federal Government a general control over railway policy, it was essential that the actual administration of the Indian railways should be placed in the hands of a statutory body having such powers as would enable it efficiently to discharge its duties on business principles without being subject to political interference, it being understood that the existing rights of the Indian railway companies which they possess under the terms of their contracts would be preserved. It was added that His Majesty's Government were in consultation with the Government of India on the question of principle and detail which would have to be settled before a satisfactory scheme to give effect to these proposals could be devised.

Subsequently the Secretary of State appointed a representative committee of European and Indian gentlemen to make recommendations for the consideration of the Joint Parliamentary Committee as regarded the general control and administration of Indian railways under the proposed new Constitution, and the Secretary of State did him the honour of nominating him to be a member of that Committee. Amongst the recommendations which the Committee put forward for dealing with this important question, it was unanimously agreed that, in the scheme for the establishment of the statutory body referred to, to be known as the Railway Authority, provision would be made for safeguarding the

existing rights of companies working under contracts with the Secretary of State in Council, and further, that it would be the duty of the Railway Authority to refer to the Secretary of State any matters in dispute with the companies which, under the terms of those contracts, were subject to the decision of the Secretary of State in Council or might be referred to arbitration. It would be obligatory on the Railway Authority and the Federal Government to give effect to the decision of the Secretary of State or the award of an arbitrator. Again, apart from these recommendations of the Committee, the Secretary of State himself had agreed that it would be necessary to preserve in the Constitution Act the existing rights which the Indian railway companies possessed under contracts entered into with the Secretary of State in Council.

With regard to the ensuing year, he had hoped to have been able to tell them that, from reports received from India, the prospects were more hopeful than they had been for some time past. They had now, however, received news of the earthquake which occurred in India on Monday. They did not know at present whether or not any damage had been caused to their railway which would be likely to affect their traffic or to result in any heavy expenditure in repairs, although information had come to hand that their neighbouring railway, the Bengal & North Western Railway, had suffered somewhat severely—two spans of a large bridge having collapsed. In these circumstances, he was afraid that it would not be safe for him, at the moment, to make any definite pronouncement regarding the prospects for the current year. Once again he should like to record the Board's appreciation of the excellent way in which their staff of all ranks both in India and in their London office had discharged their duties during the year. The resolution was unanimously adopted.

After the transaction of some further formal business the meeting closed with a vote of thanks, moved by Col. Davidson, to the Chairman, Directors and Staff.

British and Irish Railway Traffic Returns

GREAT BRITAIN	Totals for 2nd Week			Totals to Date		
	1934	1933	Inc. or Dec.	1934	1933	Inc. or Dec.
L.M.S.R. (6,940¾ mls.)	£	£	£	£	£	£
Passenger-train traffic ...	355,000	350,000	+ 5,000	699,000	695,000	+ 4,000
Merchandise, &c. ...	438,000	378,000	+ 60,000	815,000	717,000	+ 98,000
Coal and coke ...	280,000	252,000	+ 28,000	523,000	468,000	+ 55,000
Goods-train traffic ...	718,000	630,000	+ 88,000	1,338,000	1,185,000	+ 153,000
Total receipts	1,073,000	980,000	+ 93,000	2,037,000	1,880,000	+ 157,000
L.N.E.R. (6,339 mls.)						
Passenger-train traffic ...	231,000	233,000	— 2,000	469,000	468,000	+ 1,000
Merchandise, &c. ...	313,000	262,000	+ 51,000	569,000	494,000	+ 75,000
Coal and coke ...	262,000	231,000	+ 31,000	465,000	418,000	+ 47,000
Goods-train traffic ...	575,000	493,000	+ 82,000	1,034,000	912,000	+ 122,000
Total receipts	806,000	726,000	+ 80,000	1,503,000	1,380,000	+ 123,000
G.W.R. (3,753 mls.)						
Passenger-train traffic ...	156,000	156,000	—	312,000	317,000	— 5,000
Merchandise, &c. ...	170,000	150,000	+ 20,000	332,000	290,000	+ 42,000
Coal and coke ...	114,000	111,000	+ 3,000	224,000	218,000	+ 6,000
Goods-train traffic ...	284,000	261,000	+ 23,000	556,000	508,000	+ 48,000
Total receipts	440,000	417,000	+ 23,000	868,000	825,000	+ 43,000
S.R. (2,181 mls.)						
Passenger-train traffic ...	235,000	230,000	+ 5,000	463,000	463,000	—
Merchandise, &c. ...	57,000	54,500	+ 2,500	103,500	100,500	+ 3,000
Coal and coke ...	38,000	33,500	+ 4,500	66,500	61,500	+ 5,000
Goods-train traffic ...	95,000	88,000	+ 7,000	170,000	162,000	+ 8,000
Total receipts	330,000	318,000	+ 12,000	633,000	625,000	+ 8,000
Liverpool Overhead (6½ mls.) ...	1,186	1,102	+ 84	2,282	2,178	+ 104
Mersey (4½ mls.) ...	4,444	4,258	+ 186	9,179	8,723	+ 456
*London Passenger Transport Board ...	510,800	—	—	13,886,600	—	—
IRELAND						
Belfast & Co. Dn. pass. (80 mls.)	2,004	2,051	— 47	3,726	3,739	— 13
" " goods	445	492	— 47	813	736	+ 77
" " total	2,449	2,543	— 94	4,539	4,475	+ 64
Great Northern pass. (562 mls.)	7,400	8,100	— 700	15,800	17,500	— 1,700
" " goods	6,350	8,350	— 2,000	12,950	15,200	— 2,250
" " total	13,750	16,450	— 2,700	28,750	32,700	— 3,950
Great Southern pass. (2,158 mls.)	17,512	18,449	— 937	36,680	37,708	— 1,028
" " goods	27,739	30,218	— 2,479	54,239	58,993	— 4,754
" " total	45,251	48,667	— 3,416	90,919	96,701	— 5,782

* 28th week.

British and Irish Railway Stocks and Shares

Stocks	Highest 1933	Lowest 1933	Prices Jan. 17 1934	Prices Rise/Fall
G.W.R.				
Cons. Ord. ...	55½	31	57	+1
5% Con. Prefce. ...	109¾	69½	113	+1
5% Red.Pref.(1950)	109¼	87½	111	+2
4% Deb.	108 15/16	99¼	108½*	—
4½% Deb.... ...	108	100¾	110½*	—
4½% Deb.... ...	116	106	117½*	+1
5% Deb.	128	117¼	128½*	—
2½% Deb.... ...	65	60	64½*	+1
5% Rt. Charge ...	124	111½	124½*	—
5% Cons. Guar. ...	122	103	123½	—
L.M.S.R.				
Ord.	29⅞	12⅛	27	+1
4% Prefce. (1923)	51	17	53	+3½
4% Prefce. ...	72	33¼	75	+3½
5% Red. Prf. (1955)	93	47¼	96½	+3
4% Deb.	103¼	89½	103	−1
5% Red.Deb.(1952)	114	105	112½	+1
4% Guar.	97¼	68⅜	99	+½
L.N.E.R.				
5% Pref. Ord. ...	22½	7¾	21½	+½
Def. Ord.	10¾	4⅛	10¼	+¼
4% First Prefce. ...	65½	19⅜	65	+½
4% Second Prefce.	40½	12¼	39	+1
5% Red.Pref.(1955)	83¾	27	83½	+1
4% First Guar. ...	94¾	58¼	96½	—
4% Second Guar.	89¼	48	90	—
3% Deb.	77	60¼	77	−1
4% Deb.	102¾	80	102	−1½
5% Red.Deb.(1947)	112	102½	111	—
4½% Sinking Fund Red. Deb.	107½	98¾	106½	—
SOUTHERN				
Pref. Ord.... ...	71	27¾	69	+4
Def. Ord.	24⅝	9⅝	20½	+½
5% Prefce. ...	107 11/16	74	109½	+½
5% Red.Pref.(1964)	107¾	78⅞	111	+1
5% Guar. Prefce.	124¼	102¾	122½	+1
5% Red.Guar.Pref. (1957)	115⅝	103½	115½	—
4% Deb.	107½	96¾	107	—
5% Deb.	126½	114¼	127½	—
4% Red. Deb. 1962–67	107¼	100	106½	—
BELFAST & C.D.				
Ord.	6	4	6	—
FORTH BRIDGE				
4% Deb.	99½	95½	99½*	—
4% Guar. ...	98½	94	99½*	—
G. NORTHERN (IRELAND)				
Ord.	7½	3½	5	—
G. SOUTHERN (IRELAND)				
Ord.	28	16	25	—
Prefce.	24	12⅛	19¾	+¾
Guar.	42	16¾	44	+2
Deb.	60	30⅞	60	—
L.P.T.B.				
4½% "A" ...	117⅞	112	116	—
5% "A"	127¼	119¼	126½	−½
4½% "T.F.A." ...	111¼	106	109½	—
5% "B"	122½	114	121½	−1½
"C"	86¾	74½	85	+2
MERSEY				
Ord.	16¼	5	13	+1
4% Perp. Deb. ...	83	63⅞	82½	+1
3% Perp. Deb. ...	62	51	61½	+1
3% Perp. Prefce....	50⅝	27	49½	—

* ex dividend.

Keeping Abreast of the Times in the Goods Department

Mr. H. W. Payne, Assistant to the Chief Goods Manager, G.W.R., addressed a well-attended meeting of the Great Western Railway Lecture and Debating Society at Paddington station on January 11, on "Keeping Abreast of the Times in the Goods Department." Mr. A. Maynard, Chief Goods Manager, presided.

The speaker began by emphasising that the Goods Department is essentially commercial, and must be continuously concerned with business problems touching the terms of conveyance of traders' minerals and merchandise. He traced, in brief outline, the evolution of the system of railway rates and charges, referred to the various statutory restrictions that were operative, and explained the measure of relief conferred upon the railway companies by the Road and Rail Traffic Act, 1933. Under this Act, an agreed charge for the conveyance of a trader's traffic at a fixed figure per unit, generally per ton, becomes legal, subject to the approval of the Railway Rates Tribunal. This concession in the direction of commercial liberty should strengthen the railway companies in their struggle with competing transport. The lecturer proceeded to give an informative account of the principles underlying rate making, and the problems that had to be met, mentioning in particular the general principle of granting exceptional rates for large quantities of traffic.

On the subject of coal traffic, Mr. Payne spoke of the initiative of the Great Western Railway in encouraging the use of 20-ton coal wagons by putting 5,000 of such wagons at the disposal of coalowners on favourable terms, and by certain other concessions contingent on their use. He spoke also of the recently-arranged commutation of charges for conveyance of empty coal wagons from district to district, and to and from repair shops, &c.

Mr. Payne outlined what had been done in the direction of fitting ordinary 12-ton wagons with vacuum brakes and oil axle-boxes for modern fast-running goods trains, also in the provision of special vehicles for every conceivable type of traffic, culminating in the building of 120-ton "crocodiles" for the conveyance of electrical transformers.

On the subject of goods train services, he said it was an axiom to-day that if an additional train was wanted it was run, and if a train was too slow it was accelerated.

As an economy in goods handling, and also to speed up deliveries, the abolition of the truck-side check was referred to—the delivery check being now alone depended upon. This was an example of the department's readiness to move forward from yesterday's practice wherever necessary. The speaker referred to the rapidly-increasing provision of various kinds of containers, with the object of undisturbed door to door conveyance of goods, as one of the most revolutionary changes of recent years.

Among other subjects dealt with was "Registered Transits," initiated by the Great Western Railway in 1929, and adopted by the other companies in 1933. Over 70,000 of such consignments had been carried by the Great Western Railway to date, and the popularity of the service was still growing.

Developments on the cartage side comprised railhead road deliveries from regional centres, country lorry services, and special road haulage contracts where rail haulage was impracticable. In the sphere of furniture removals also, the railway companies were now undertaking, and satisfactorily discharging, a vastly increased business. The lecturer spoke of the acquisition by the railway companies of a financial interest in Messrs. Carter Paterson and Pickfords as a valuable advance in the direction of transport co-ordination.

The policy of the Goods Department in providing warehousing and storage accommodation at their depôts, and in encouraging the erection of new factories on sites adjoining the railway, was being developed to its maximum. Activity in traffic-getting was never more vigorous or better directed than to-day, a notable feature being the use of traffic advice cards by ordinary members of the staff who had news of prospective traffic.

Other subjects dealt with included the provision of mechanical appliances, both in goods shed and office, and the granting of bulk travel facilities for traders and their representatives. The speaker also gave particulars of the operation and growth of the pooling arrangements between the G.W.R., L.M.S.R., and L.N.E.R. In conclusion, he welcomed the gentle trade revival now in evidence, and said it should be taken as an admonition to be ready for the further expansion which was confidently expected to follow.

After the lecture, Mr. Payne showed on the screen a series of 60 graphs and photographs which emphasised and illustrated various phases of his paper.

(*See editorial note on page* 86)

Portable Lamps and their Applications

In a paper delivered in London before the Illuminating Engineering Society on January 9, and bearing the above title, Mr. A. Cunnington, Assistant for Lighting, Heating and Water to the Chief Engineer of the Southern Railway, described the development of portable lighting units, from the simple wick lamp and flares in common use during the last century, to the more effective appliances now provided on the railways for the illumination of night works and remote country stations. The provision of electricity and gas over an ever widening area was diminishing the number of independent light units required in stations and yards, but for obvious reasons such units continued to be in demand for inspection, platelaying and other purposes, and great improvements had been wrought in all types during recent years to make a high degree of efficiency and reliability compatible with real portability, and with a strength sufficient to resist rough usage.

Despite their inefficiency, paraffin oil flares continued to be used on account of their extreme simplicity, which ensured their functioning properly in the hands of the most unskilled. In the older type gravity led the oil through the preheater to the small burner orifice, but in a modification the oil was put under a small air pressure by a bicycle or other air pump to enable it to reach a burner placed above the reservoir. Paraffin flares provided a mean horizontal candle power (m.h.c.p.) of 50 at a cost (with paraffin a 1d. a pint) of 1s. 2d. per 1,000 candle-hours.

Acetylene flares provided a m.h.c.p. of 80 at a cost (with carbide at 2d. a lb.) of 1s. 3d. per 1,000 candle-hours. Though only a little more expensive to operate than paraffin flares, acetylene flares formerly proved very difficult to regulate. In theory it was supposed to be possible to govern the generation of gas automatically by letting its formation control the level of the water in the carbide chamber. In practice the water would rise considerably too far without at first causing any generation of gas from the warm, dry carbide, and then, with the sudden generation which eventually ensued, it would retreat out of contact with the carbide altogether. Acetylene was thus formed spasmodically.

In the modern flare the gas was generated under pressure, variations in which controlled the supply of water through a sensitive valve. Generation was continuous, and overheating was reduced to such an extent that air cooling could be relied upon in small units. Thus a lamp taking a 3½ lb. charge of carbide and working on this principle weighed only 24 lb. and gave a useful light for 6 hours. Cake carbide lamps were simple to manipulate and for this reason were found useful. Dissolved acetylene was also suitable for portable flares, it being provided in cylinders like oxygen and other gases.

Easily the most efficient among portable lamps was the incandescent mantle type of paraffin lamp, the first example

of which seen in use by the author had been at the Paris Exhibition in 1900. The modern lamp gave a m.h.c.p. of 100 at a cost of 2d. per 1,000 candle-hours. It could be started with a small amount of methylated spirit or alternatively with paraffin from its own reservoir and, in the event of its choking, manipulation of the regulating valve would insert a needle into the burner orifice and overcome the trouble instantly. A petrol vapour lamp was more quickly lighted, but with petrol at 2d. a pint the cost of 1,000 light-hours was 5d.

Where the operations of pumping in air and preheating a vaporiser could not be safely entrusted to everybody, a suitable alternative to the paraffin vapour lamp was the wick lamp modified to heat a mantle. This type of lamp had the additional advantage that it did not hiss like the vapour lamp. Its wick was of circular tube formation, and the air was supplied in such a manner as to provide a blue flame. A tendency to over-vaporisation, causing the flame to run up after the lamp had been alight for some time, was a common trouble with old wick lamps. The gradual warming up of the wick containing tubes was mainly responsible for this, and it was prevented in lamps of more recent construction by careful detail design.

Electric battery lamps making use of dry cells or unspillable accumulators were very convenient for many inspection purposes, but a disadvantage of the lead accumulator type was its liability to become useless through neglect. Nickel-cadmium cells gave much less trouble in this respect.

Several considerations affected the choice of a lamp for a particular purpose. For small jobs on the permanent way, necessitating the frequent movement of the light source, actual experience had shown the more robust acetylene flare to be the most suitable lamp. For larger works, such as the renewal of points and crossings, the paraffin vapour floodlight was preferable. It could be fixed in position on a low stage beside the track and left there throughout the job.

Sometimes lamps appearing equally suitable for a particular application proved unequal when tried. Thus for tunnel inspection the enclosed acetylene lamp proved inferior to the electric battery paraffin vapour lamp because it could not be tilted backwards without smoking or cracking its glass. The need for extreme reliability in lamps used for signalling purposes had caused the old fashioned wick oil lamps to be retained for the use of guards and shunters, while lamps of higher power and efficiency had come in for carriage examiner's and similar work.

The paper was illustrated by numerous specimens and slides, and the author expressed his indebtedness to Messrs. A. C. Wells, C. S. Milne, Carbic Limited, Tilley Lamp Company, Coleman Quicklite Company, Aladdin Industries Limited, the Nife Battery Company, Exide Battery Company, and the Ever Ready Company.

CONTRACTS AND TENDERS

The announcement in our last week's issue of enquiries being made by the L.M.S.R. for new coaching stock referred to this as of all-steel construction, whereas it should have described it as of semi-steel construction. The proposal is for new stock for the L.M.S.R. to be of the latest standard type with steel underframes and steel-sheeted wooden bodies.

Bruce Peebles & Co. Ltd. has secured a large contract from the Southern Railway in connection with the electrification extensions to Sevenoaks, Eastbourne and Hastings. These schemes were described in our issues of December 1 and 8 last.

The Kennicott Water Softener Co. Ltd. has received an order from the London & North Eastern Railway for water-softening plant at Werrington.

Following the recent installation of 28 plants for the softening of locomotive water at strategic points on the two main routes between London and Carlisle, the L.M.S.R. has decided on a big extension of these plants. A further 22 installations, with an aggregate capacity of 372,000 gallons per hour, are to be laid down at the following places in the Midlands, Lancashire, Yorkshire, North Wales and the West of England :—

Kirkby, Wigan, Bolton, Horbury, Whitley Bridge, Goole, Newton Heath (Manchester), Rufford, Southport, Burton, Bromsgrove, Gloucester, Bristol, Bath, Prestatyn, Flint, Chester, Ditton, Cheadle, Bebington, Nottingham and Totley.

The Craven Railway Carriage & Wagon Co. Ltd. has received an order from the Chinese Government Purchasing Commission for 20 40-ton flat wagons.

John I. Thornycroft & Co. Ltd. has received a repeat order to the value of £9,000 from the Carminhos de Ferro de Lourenço Marques for six Amazon-type, six-ton, rigid six-wheel road vehicles. Each is to be equipped with hinged-sided bodies, and a five-ton platform trailer.

The British Dardelet Threadlock Limited has received further repeat orders for 30,000 Dardelet fishbolts for the Buenos Ayres & Pacific Railway, and also a large order for the same material for the Argentine State Railways.

Messrs. Robert White & Partners have placed, on behalf of the Bhavnagar State Railways, an order with the Birmingham Railway Carriage & Wagon Company for 50 four-wheeled covered wagons, 95 four-wheeled open wagons and five double-bogie open wagons, all these vehicles being for service on the metre gauge.

The Hasler Telegraph Works, after having supplied 44 Hasler automatic flange lubricators to the Madras & Southern Mahratta Railway, has now received an order for 24 lubricators to be fitted on the X-class locomotives of the South Indian Railway. In addition, the Paulista Railway of Brazil has given an order for 36 of these lubricators, following satisfactory trials.

The Hasler Telegraph Works has received an order from the National Railways of Mexico for four Teloc speed indicators and recorders for application to four inspection coaches.

The Madras & Southern Mahratta Railway is inviting tenders for 207½ tons of structural steelwork, together with galvanised steel gutters, &c., patent glazing, glass, &c. Tenders are due in on Thursday, March 1, by 2 p.m. Tender forms are obtainable at 25, Buckingham Palace Road, Westminster, S.W.1.

R. & W. Hawthorn, Leslie & Co. Ltd. has received an order for two locomotive boilers together with spare inner fireboxes and firebox back plate from the Entre Rios Railway.

H.M. Consul at Port Alegre reports that the Viaçao Ferrea do Rio Grande do Sul is calling for tenders, to be presented in Brazil by February 15, for the supply of round and flat steel bars for rolling-stock springs. Further details of this call for tenders can be obtained from the Department of Overseas Trade.

The Commercial Secretary to H.M. Embassy at Lisbon has forwarded to the Department of Overseas Trade a specification and drawings relative to a call for tenders by the Compagnie des Chemins de Fer Portugais for the supply of steel rails, fishplates, angle sole plates. The last date for the submission of tenders is January 22.

The English Electric Co. Ltd. has recently received orders, through the British Electric Federation Limited, for bus bodies from railway-associated companies as follow :—

Western Welsh Omnibus Co. Ltd.—nine single-deck front-entrance type bus bodies each seating 32 passengers. These bodies will be mounted on Leyland chassis.

East Yorkshire Motor Services Limited—three luxury-type coaches seating 31 passsngers. These bodies will also be mounted on Leyland chassis.

Leyland Motors Limited has recently received orders from railway-associated bus companies as follow :—

Devon General Omnibus & Touring Co. Ltd.—six Lion vehicles.

Maidstone & District Motor Services Limited—six Lion and two oil-engined Tiger vehicles.

Ribble Motor Services Limited—12 oil-engined Titans.

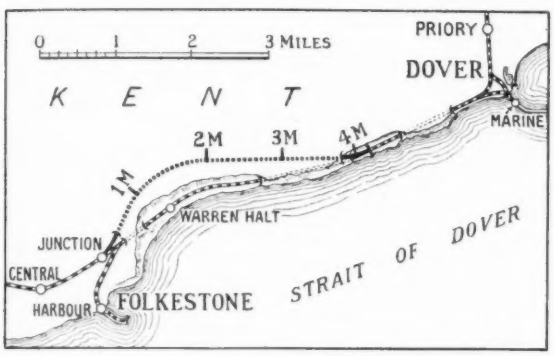
Cumberland & District Motor Services Limited—four Lion and four Titan double-deckers.

As from February the management and executive side of Britannia Batteries Limited, at present centred at Britannia House, Shaftesbury Avenue, London, W.C.2, will be at the works at Redditch, Worcestershire. The London dry battery and accumulator depot will remain at Britannia House, and the service depot and repair workshop at 15, Upper George Street, W.1.

NOTES AND NEWS

West Stanley Station, L.N.E.R.—Shield Row station, between Annfield Plain and Beamish in Durham, will be known as West Stanley on and from February 1. There is now a population of more than 24,000 at West Stanley.

Proposed Diversion between Folkestone and Dover.—The Southern Railway has applied for powers for the building of a new double line between Folkestone and Dover as an alternative to the existing main line through the Warren. It may be recalled that the latter line has been subjected from time to time to interruption through movement of the cliff, and had to be closed to traffic for a period during the war from this cause. The accompanying plan shows the site of the proposed new line, which would leave the existing line at Folkestone junction and enter a three-and-a-half-mile tunnel just to the north of the west entrance of the Warren tunnel. It would rejoin the existing line about 500 yards west of the west entrance of the Shakespeare tunnel. Although powers are being sought for the construction of this line, there is no intention of immediately constructing it, but it is considered desirable that, should the occasion arise, work might be put in hand without delay.



Plan showing alignment of proposed diversion between Folkestone and Dover

The Indian Earthquake.—Jamalpur, the headquarters of the Mechanical Engineering Department of the East Indian Railway, appears to have suffered severely in the earthquake on Monday last. In normal times, some 12,000 hands are employed in the workshops and there is a large staff of European supervision. It is with sincere regret that we learn of the deathroll and number of injured, a member of the European staff suffering tragic bereavement. On the north bank of the Ganges, damage appears from later messages to have been much more severe and the Bengal & North Western Railway has apparently been wrecked in many places. The most serious damage at present reported is in the collapse of two spans of a large bridge. But the extent of the havoc and loss of life in this area is as yet unknown, though the loss of life, estimated on the basis of an air reconnaissance, in the Mazaffarpore and adjacent areas, is now thought to be 2,000 or more. Floods gushing from fissures in the earth have seriously damaged railways in Bihar.

South Australian Washaway.—Recent floods have caused the largest washaway which has occurred on the South Australian Railways for six years. The one saving clause was that it came at an opportune time to assure the many unemployed, who were drafted to the scheme for repairs, a happier Christmas. The entire resources of the railway were placed at the disposal of the Chief Engineer, as the important oil and chemical centre, Broken Hill, was completely isolated. As soon as the track was restored, though really fit only for the lightest traffic, a train of oil and acid tanks—the heaviest rolling stock used, not even excepting locomotives—was sent through, the tank-wagons being separated by 100 ft. of trucks so as to avoid concentration of the loads.

Southern Divisional Engineer's Staff Dinner, Southern Railway.—On January 5, the Southern Divisional Engineer's staff held a dinner and concert at Brighton under the chairmanship of Mr. C. V. Hill, Divisional Engineer. Mr. Hill was supported by the following:—Messrs. W. Davidson (Engineering Assistant, Newhaven); G. S. Findlay (Assistant Divisional Engineer), R. Gurd (Chief Draughtsman, S.D.E.'s Office), G. H. Hare Dean (South Coast Traffic Representative), J. H. Knotts (Chief Engineer's Office), C. A. G. Linton (Divisional Engineer, London Bridge), H. E. Robarts (Divisional Engineer, Ashford), H. F. Russ (Chief Clerk, S.D.E.'s Office, Brighton), L. Sears (Assistant S.C. Traffic Representative), and E. Treacher (Chief Engineer's Office). Mr. Findlay, in proposing the toast of "The Chairman," paid tribute to Mr. Hill's invariable good temper and sympathy with the staff in their various tasks, which had been specially heavy in recent years due to the extension of electrification to the coast. Mr. Hill, in responding, read a letter from Mr. Ellson, the Chief Engineer, regretting his inability to attend, in which appreciation was expressed of the work of the division. Mr. Gurd proposed the toast of "The Visitors," which was replied to by Mr. Robarts and Mr. Linton. The gathering numbered about 130 and a most enjoyable evening was spent.

New Halt at Hove.—On Friday, January 12, the Mayoress of Hove opened the new Rowan Halt, on the Dyke line, Southern Railway. It has been built to serve the new estate of Aldrington Manor.

Water-Softening Plants on the L.M.S.R.—In our Contracts and Tenders columns this week we record that the L.M.S.R. has decided to instal 22 further water-softening plants at various important points on the system. There are already 28 such plants in use on the two main-line routes between London and Carlisle.

The London Passenger Transport Problem.—Two public lectures on "Practical Aspects of the London Passenger Transport Problem," are to be given by Lord Ashfield and Mr. Frank Pick at the London School of Economics, on February 26 and March 5 respectively. In both cases the lectures will begin at 5 p.m., and entrance will be without fee or ticket.

South American Floods.—From all accounts the South American floods have done very extensive damage to the railways. The estimates of the length of time it will take to restore the Transandine Railway for operation vary from one to two years on the Argentine side and four to five months on the Chilean section. The Cacheuta Hotel near Mendoza, which is controlled by the Buenos Ayres & Pacific Railway, is reported to have been nearly destroyed, the guests being evacuated via the nearest point undamaged on the railway. £3,000,000 is suggested as the probable loss incurred by the railways concerned.

Some Recent Developments in Railway Signalling.—Before a meeting of the engineering students of the London University on January 12, a lecture with the above title was delivered by Mr. A. E. Tattersall, Signal and Telegraph Engineer, North Eastern Area, L.N.E.R. The greater part related to the re-signalling between York and Northallerton, which was described in our issues of April 28, 1933, and of January 12 last. The latter portion of the lecture enlarged on some of the features, *e.g.*, the phase-controlled track circuits, colour-light signals, electro-mechanical colour-light signals and the elimination of fogmen, speed signalling and centralised traffic control.

The Financial Side of Signalling Economics.—At a general meeting of the Institution of Railway Signal Engineers, on Wednesday evening, a paper, entitled as above, was read by Mr. H. H. Dyer. Those who took part in the subsequent discussion were Messrs. W. Wood, J. Sayers, H. F. D. Page, W. Challis (the President), T. Austin, A. M. Creasey, and F. L. Castle. At the beginning of the meeting the President announced that the awards for the prize essay competition for student members had been made to Messrs. John S. Davis and W. D. Miller, and that, fo

OFFICIAL NOTICES

London & North Eastern Railway Company

NOTICE is hereby given that the Directors have fixed January 24th at the close of business as the date for striking the Balances of the Company's Guaranteed, Preference and Ordinary Stocks. Final Dividends declared for the year ended December 31st, 1933, will be payable only to the Stockholders whose names are registered in the books of the Company on the date so fixed.

Deeds of Transfer should, therefore, be lodged with the Registrar of the Company at Hamilton Buildings, Liverpool Street Station, London, E.C.2, before 3 p.m. on January 24th.

By Order,
JAMES McLAREN,
Secretary.

Marylebone Station,
London, N.W.1.
January 15th, 1934.

The Motherwell Wagon and Rolling Stock Co. Ltd.

(In Voluntary Liquidation).

FOR IMMEDIATE SALE, large works at Flemington, Motherwell, with direct connection to L.M.S. main line. The works comprise: Wheel Shop (177 ft. x 160 ft.); Forge (121 ft. x 31 ft.); Smith Shop (194 ft. x 44 ft.); Saw-mill (155 ft. x 65 ft.); Wagon Shops (320 ft. x 65 ft. and 240 ft. x 33 ft.) and other smaller buildings; large block of offices. The buildings are equipped with modern hydraulic and electrical plant, turning and machining lathes, drills, &c.; all or part thereof may be taken over as desired. Extent of ground, 23 acres; Ground rent (feuduty), £255 4s. 8d. per annum. Further particulars and cards to view from the undersigned, with whom offers are to be lodged on or before 24th curt.

THOS. ORMISTON, F.C.I.S.,
Liquidator.

6, Brandon Street,
Motherwell.

THE MADRAS & SOUTHERN MAHRATTA RAILWAY CO. LTD. invite TENDERS for:—

207½ Tons STRUCTURAL STEEL WORK (together with Galvanised Steel Gutters, &c., Patent Glazing, Glass, &c.).

Tenders are due in on Thursday, 1st March, 1934, by 2 p.m.

Tender Forms are obtainable at address below, fee ONE GUINEA, *which will not be returned.*

The Directors do not bind themselves to accept the lowest or any Tender.

Company's Offices,
25, Buckingham Palace Road,
Westminster, London, S.W.1.

Chinese Government Purchasing Commission

THE Commission is prepared to receive Tenders from British Manufacturers for the supply of:—

(A) 11 Tons of RAIL BRACES for 43-kg. Rails.
(B) 2 Sets of POINTS and CROSSINGS from 45-kg. Rails.
66 Sets of SWITCH GLANDS, TARGETS and LAMPS.

Tender Forms, &c., can be obtained at the offices of the Consulting Engineers, Messrs. Sandberg, 40, Grosvenor Gardens, London, S.W.1.

A non-returnable fee of 5s. will be charged for each set of documents.

PATENTS for Inventions, Trade Marks, Advice, Handbook, and consultations free. King's Patent Agency, Ltd. (B. T. King, C.I.M.E., Registered Patent Agent, G.B., U.S., and Canada), 146a, Queen Victoria Street, London, E.C.4. 49 years' references. 'Phone City 6161.

South Indian Railway Company Limited

THE Directors are prepared to receive Tenders for the supply of:—

1.—STEEL TYRES FOR LOCO. ENGINES AND TENDERS AND CARRIAGES AND WAGONS.
2.—SOLID DRAWN STEEL BOILER TUBES.
3.—HELICAL AND VOLUTE SPRINGS.

Specifications and Forms of Tender will be available at the Company's Offices, 91, Petty France, Westminster, S.W.1.

Tenders, addressed to the Chairman and Directors of the South Indian Railway Co. Ltd., marked "Tender for Steel Tyres," or as the case may be, with the name of the firm tendering, must be left with the undersigned not later than 12 noon on Friday, the 2nd February, 1934

The Directors do not bind themselves to accept the lowest or any Tender.

A charge, which will not be returned, will be made of £1 for each copy of Specification No. 1, and of 10s. for each copy of Specification No. 2, and of 2s. 6d. for each copy of Specification No. 3.

Copies of the drawings may be obtained at the Offices of the Company's Consulting Engineers, Messrs. Robert White & Partners, 3, Victoria Street, Westminster, S.W.1.

A. MUIRHEAD,
Managing Director.

91, Petty France,
Westminster, S.W.1.
17th January, 1934.

"SYSTEM and Apparatus for the Electro-dynamic Operation of Railway Points, Semaphores and the like."

The Proprietors of British Patent No. 331,891 desire to arrange for the commercial working of this Patent by sale outright or by licences granted on participating and reasonable terms.

Particulars obtainable from TECHNICAL RECORDS LIMITED, 59-60, Lincoln's Inn Fields, London, W.C.2.

the best papers read during 1932 and 1933, the first prize had been awarded to Mr. John R. Edwards for "Railway Telephony," and the second to Mr. G. H. Crook, for "Automatic Train Control."

German State Railway Traffics.—According to the provisional report for 1933 of the German State Railways, the year's receipts were again below those of the preceding year, states *The Financial Times*. Passenger revenue totalled RM. 840,000,000 (about £42,000,000 at par), against RM.901,000,000 (£45,050,000) for 1932, a fall of RM.61,000,000 (£3,050,000). Goods traffic was higher by 3 per cent. as compared with 1932.

Railway Conciliation Machinery.—When the Executive of the National Union of Railwaymen meets in London on Wednesday, January 24, it will probably have under consideration tentative proposals from the railway companies in regard to the reconstitution of the National and Central Wages Boards. The proposals will be considered in the meantime by the other two railway unions. A further meeting with the railway companies' representatives is not likely before the end of this month.

French Railway Reform.—M. Paganon, Minister of Public Works, announced yesterday, according to Reuters, that, as a result of enquiries following the Lagny disaster, it had been decided to expend about £35,000,000 on improvements to French railways over a period of eight years. The universal adoption of the new standard signalling, agreed upon recently, will be accelerated; certain lines will be widened; more all-steel coaches will be built, and existing wooden stock strengthened.

Exports of Railway Material from the United Kingdom in December

	Dec., 1933	Dec., 1932	Twelve Months Ending Dec., 1933	Twelve Months Ending Dec., 1932
	£	£	£	£
Locomotives, rail	14,387	16,667	734,428	366,875
Carriages and wagons	39,506	67,579	527,291	748,757
Rails, steel	13,677	16,910	481,837	389,995
Wheels, sleepers, fishplates and miscellaneous materials	91,673	92,707	838,490	831,394

Locomotive and rail exports included the following:—

	Locomotives Dec., 1933	Locomotives Dec., 1932	Rails Dec., 1933	Rails Dec., 1932
	£	£	£	£
Argentina	842	—	158	31
British South Africa	3,780	805	106	5,519
British India	1,336	14,910	5,526	358

Forthcoming Meetings

Jan. 22 (*Mon.*).—Permanent Way Institution (London), at Waterloo Station, S.E.1, 7 p.m. "Track Maintenance in the Tropics," by Mr. R. D. Walker.

Jan. 23 (*Tues.*).—L.N.E.R. (York) Lecture and Debating Society, at Railway Inst., Queen Street, 7 p.m. "Passenger Traffic by Road," by Mr. A. T. Evans.

Institution of Civil Engineers, Great George Street, London, S.W.1, 6 p.m. "Hammer-Blow Impact on the Main Girders of Railway Bridges," by Messrs. R. W. Foxlee and E. H. Greet. "Moving-Load Stresses in Short-Span Railway Bridges," by Mr. W. E. Gelson.

Jan. 24 (*Wed.*),—Institute of Transport (Scottish), at Ca'doro Restaurant, Union Street, Glasgow, 7.15 p.m. "Maintenance of Public Service Vehicles," by Mr. J. S. Ross.

L.N.E.R. (Darlington) Lecture and Debating Society, at North Road Inst., 7.30 p.m. "Railway Rates: Road and Rail Traffic Bill, 1933," by Mr. A. E. Sewell.

Jan. 25 (*Thurs.*).—G.W.R. (London) Lecture and Debating Society, at Paddington Station, 5.45 p.m. Prize Essay Reading.

British Railway Stockholders' Union Limited, at St. Ermin's Restaurant, Caxton Street, London, S.W.1, 12.45 for 1 p.m. Luncheon. "Where the Rail Beats the Road," by Sir Malcolm Campbell.

Institution of Locomotive Engineers (London), at Inst. of Mechanical Engineers, Storey's Gate, S.W.1, 6 p.m. "Boiler Repairs," by Mr. R. I. Kirkland.

Railway Reports

Chilian Transandine Railway.—A working loss of £4,434 is reported for the year ended June 30, 1933, against £24,857 for 1931-3. After charging debenture interest, &c., the debit balance forward is increased to £369,137. No adequate comparison can be made between the receipts obtained in the two years 1931-32 and 1932-33, as the Argentine Transandine Railway, which closed down its line on April 20, 1932, did not reopen it until December 5, 1932, the Chilian Transandine Railway thus being deprived of all income from international traffic for 2⅓ months in 1931-32 and for over five months in 1932-33.

BRITISH RAILWAY STATISTICS

"The Railway Gazette" monthly table of freight and passenger traffic figures for October, 1933, as compared with the corresponding period in 1932, compiled from the Ministry of Transport Statement No. 167

Description	Great Britain*	Great Western	London & North Eastern	London Midland & Scottish	Southern
PASSENGER TRAIN TRAFFIC—					
Number of passenger journeys (excluding season-ticket holders)	94,407,548	7,018,471	13,770,750	22,233,625	16,588,504
Increase (+) or decrease (−)	+ 1,424,655	− 172,514	+ 417,016	+ 520,069	+ 546,752
Passenger receipts (excluding season-ticket holders)	£3,552,507	£461,913	£713,138	£1,119,657	£747,875
Increase (+) or decrease (−)	− £80,999	− £36,431	− £16,584	− £39,204	+ £9,307
Season-ticket receipts	£834,930	£54,809	£151,374	£238,333	£248,527
Increase (+) or decrease (−)	+ £7,128	− £1,897	− £4,660	− £5,214	+ £11,085
Parcels and miscellaneous traffic receipts (excluding parcels post)	£1,116,465	£200,108	£323,396	£436,572	£129,529
Increase (+) or decrease (−)	+ £54,663	+ £10,961	+ £12,928	+ £25,777	+ £5,615
FREIGHT TRAIN TRAFFIC—					
Freight traffic (tons) (excluding free-hauled)	21,086,007	4,969,906	9,845,442	9,507,167	1,301,755
Increase (+) or decrease (−)	+ 1,224,445	+ 152,101	+ 982,483	+ 329,304	+ 28,721
Net ton-miles (excluding free-hauled)	1,164,756,360	211,061,628	400,620,290	466,737,054	53,252,091
Increase (+) or decrease (−)	+ 59,496,915	+ 12,450,803	+ 26,597,538	+ 17,845,685	+ 1,169,055
Average length of haul (miles) (excluding free-hauled)	55·24	42·47	40·69	49·09	40·91
Increase (+) or decrease (−)	− 0·41	+ 1·25	− 1·51	+ 0·18	—
Freight traffic receipts	£6,869,115	£1,135,000	£2,357,000	£2,779,000	£382,671
Increase (+) or decrease (−)	+ £487,946	+ £57,000	+ £302,800	+ £120,000	− £7,684
Receipts per ton-mile	1·415d.	1·29d.	1·41d.	1·43d.	1·73d.
Increase (+) or decrease (−)	+ 0·029d.	− 0·01d.	+ 0·09d.	+ 0·01d.	− 0·07d.
Freight train-loads—					
Average train-load (tons)	123·83	129·56	131·17	120·47	100·83
Increase (+) or decrease (−)	+ 2·05	+ 3·88	+ 2·15	+ 1·31	− 0·08
Net ton-miles—					
Per train engine-hour	1,010·79	1,058·76	1,048·47	998·21	819·32
Increase (+) or decrease (−)	+ 12·96	+ 37·73	+ 14·00	− 0·71	+ 14·12
Per shunting-hour	839·59	750·82	915·16	882·95	554·62
Per total engine-hour	458·63	439·29	488·65	468·53	330·74
Net ton-miles per route-mile per working day	2,543	2,467	2,774	2,954	1,101
Increase (+) or decrease (−)	+ 128	+ 138	+ 174	+ 123	+ 25
Wagon-miles. Total	343,531,512	60,436,051	119,956,892	143,413,006	17,228,484
Increase (+) or decrease (−)	+ 15,634,420	+ 2,856,324	+ 7,494,189	+ 4,593,652	+ 409,979
Percentage of loaded to total	67·53	68·75	64·89	69·35	66·99
Wagons per train—					
Total	34·48	34·55	35·22	34·40	31·43
Increase (+) or decrease (−)	+ 0·43	+ 0·74	+ 0·46	+ 0·31	+ 0·05
Loaded	23·29	23·75	22·85	23·86	21·06
Empty	11·19	10·80	12·37	10·54	10·37
Train-miles. Coaching—					
Per train-hour	15·12	13·83	14·15	14·60	17·84
Per engine-hour	12·07	11·03	11·05	11·03	14·52
Train-miles. Freight—					
Per train-hour	9·54	9·78	9·30	9·64	9·97
Per engine-hour	3·70	3·40	3·78	3·89	3·23
Engine-miles. Total	43,937,086	6,896,179	12,148,556	16,171,448	5,824,531
Increase (+) or decrease (−)	+ 1,256,436	+ 132,962	+ 383,489	+ 332,120	+ 243,947
Mileage run by engines. Total train-miles—					
Coaching	21,696,928	2,938,145	4,942,160	6,922,128	4,237,719
Freight	9,964,473	1,749,292	3,406,169	4,168,492	548,099
Engine-hours in traffic. Total	4,684,064	806,367	1,414,993	1,785,782	477,301
Increase (+) or decrease (−)	+ 97,745	+ 10,351	+ 41,291	+ 37,591	+ 84
Shunting miles per 100 train-miles—					
Coaching	7·66	6·99	6·56	8·62	8·27
Freight	73·78	86·35	70·41	67·85	95·49

* All standard-gauge railways

Passenger Traffic Statistics: Number of Journeys, Receipts, and Receipts per Journey (excluding Season-Ticket Holders)—October, 1933

Subject	Great Britain	Great Western	London & North Eastern	London Midland & Scottish	Southern	Cheshire Lines Committee	Liverpool Overhead	London Passenger Transport Board†	Mersey
Full fares—									
Passenger journeys	30,019,180	735,456	1,248,141	1,768,817	2,688,013	28,486	146,272	22,509,337	89,279
Gross receipts	£910,385	£84,338	£136,526	£158,796	£195,372	£3,762	£1,584	£311,576	£1,597
Receipts per passenger journey	7·28d.	27·52d.	26·25d.	21·55d.	17·44d.	31·70d.	2·60d.	3·32d.	4·29d.
Reduced fares—									
Excursion and week-end—									
Passenger journeys	35,787,090	4,028,350	8,133,280	12,556,559	8,020,387	380,904	112,388	1,030,199	591,843
Gross receipts	£2,038,745	£314,666	£456,092	£769,127	£417,734	£22,075	£933	£22,548	£8,729
Receipts per passenger journey	13·67d.	18·75d.	13·46d.	14·70d.	12·50d.	13·91d.	1·99d.	5·25d.	3·54d.
Workmen—									
Passenger journeys	24,919,432	1,819,337	3,384,009	6,857,551	5,214,768	237,744	198,204	6,126,764	182,212
Gross receipts	£357,836	£26,500	£53,913	£107,786	£84,970	£4,020	£1,624	£66,620	£1,683
Receipts per passenger journey	3·45d.	3·50d.	3·82d.	3·77d.	3·91d.	4·06d.	1·97d.	2·61d.	2·22d.
Other descriptions—									
Passenger journeys	3,673,459	433,418	1,003,053	1,047,282	664,720	31,769	2,071	401,529	11,105
Gross receipts	£234,707	£33,524	£64,427	£79,093	£49,087	£2,551	£9	£3,453	£150
Receipts per passenger journey	15·33d.	18·56d.	15·42d.	18·13d.	17·72d.	19·27d.	1·04d.	2·06d.	3·24d.
Total—									
Passenger journeys	94,407,548	7,018,471	13,770,750	22,233,625	16,588,504	679,041	458,935	30,067,829	874,441
Gross receipts	£3,552,507	£461,913	£713,138	£1,119,657	£747,875	£32,553	£4,150	£404,197	£12,161
Receipts per passenger journey	9·03d.	15·80d.	12·43d.	12·09d.	10·82d.	11·51d.	2·17d.	3·23d.	3·34d.

† Includes passengers originating on the railway undertakings, and on the Whitechapel & Bow Joint Railway

Railway Share Market

The stock and share markets have remained strong during the week, despite some falling off in business following the announcement of the American monetary policy. Uncertainty prevails in the Stock Exchange about the effect of the latter. Home railway stocks opened the week with a percentage of liquidation in progress, holders who bought at much lower prices being inclined to take advantage of the recent improvement to realise their profits. When the traffic receipts were posted up in the market on Wednesday there was a sharp recovery in the ordinary stocks. Both the L.M.S. and L. & N.E. statements of increased traffic receipts caused the junior stocks to rise quickly.

The deferred stock of the latter company passed the 10 level, although no expectations appear to be entertained of the likelihood of a dividend for 1934, or possibly for 1935, unless there is a further very substantial increase in net revenue. The buyers of the deferred stock are "locking-up" the stock, and consequently the amount which comes back to the market for sale on a rise is not large and is much less in proportion than the quantity of the first and second preference stocks which come out on a rise in price. The debenture stocks of the companies were marked lower in sympathy with the gilt-edged market.

There has not been much movement in London Transport Board's stocks, and the "B" stock was a shade lower. Some inquiry arose from Liverpool for the Mersey issues, and the ordinary made a further advance in price. In the foreign railway market there was a good business reported in Argentine railway stocks on the further recovery in the Argentine exchange rate. Some of the movements in the preference stocks were notably substantial and indicated the presence in the market of buyers for the stocks who could not be satisfied with the amounts required. The official list quotation for Buenos Ayres Western 4½ per cent. preference stock was increased, for example, by five points to 55-60 on Tuesday without any stock changing hands, although there was a fair amount of the same company's 4 per cent. debenture stock being dealt in. The 5 per cent. preference stock was raised 2½ points to 65-70, and the preference stocks of the B.A. Great Southern and Central Argentine Companies were marked up two points each. Entre Rios ordinary stock was the most responsive among the ordinary issues, but the market in this stock is inclined to be nominal and to move rather widely each way. Investors are disinclined to buy a stock which loses about 20 per cent. of its realisable value owing to a "wide" dealing price. In other directions, Canadian Pacific common shares have been active, and maintained the greater part of the good advance recorded up to mid-week. It is reported that another "pool" has been formed in these shares.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways.	Miles open 1933-34.	Week Ending	Traffics for Week. Total this year	Traffics for Week. Inc. or Dec. compared with 1933	No. of Week.	Aggregate Traffics to Date. Totals. This Year.	Totals. Last Year.	Increase or Decrease.	Shares or Stock.	Prices. Highest 1933.	Lowest 1933.	Jan. 17, 1934.	Yield % (See Note.)
				£	£		£	£	£					
South & Central America.	Antofagasta (Chili) & Bolivia	830	14.1.34	11,230	+ 1,700	2	20,500	17,070	+ 3,430	Ord. Stk.	26	11⅝	22½	Nil
	Argentine North Eastern	753	13.1.34	8,600	— 200	28	285,700	323,800	— 38,100	,,	14½	5	10	Nil
	Argentine Transandine	111	13.1.34	1,540	+ 130	28	30,950	5,640	+ 25,310	A. Deb.	55	40	50	8
	Bolivar	170	Dec., 1933	5,350	— 1,250	52	72,700	89,350	— 16,650	6 p.c. Db.	10	5	10	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds.	15	11	11½	45/8
	Buenos Ayres & Pacific	2,806	13.1.34	120,000	—	28	2,641,000	2,808,000	— 167,000	Ord. Stk.	26	97/16	15	Nil
	Buenos Ayres Central	190	7.1.34	8,730	+ 672	28	282,270	261,365	+ 20,905	Mt. Db.	30	10	18½	Nil
	Buenos Ayres Gt. Southern	5,075	13.1.34	247,000	— 37,000	28	5,097,000	4,969,000	+ 128,000	Ord. Stk.	44½	21½	32½	Nil
	Buenos Ayres Western	1,926	13.1.34	75,000	— 5,000	28	1,711,000	1,780,000	— 69,000	,,	34½	15¾	25½	Nil
	Central Argentine	3,700	13.1.34	202,000	+ 1,000	28	4,424,000	5,220,000	— 796,000	,,	28½	15	19½	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	18	10	12½	Nil
	Cent. Uruguay of M. Video	273	13.1.34	17,854	+ 1,030	28	453,145	433,247	+ 19,898	Ord. Stk.	20	8	12	Nil
	Do. Eastern Extn.	311	13.1.34	3,687	— 337	28	86,963	91,422	— 4,459	—	—	—	—	—
	Do. Northern Extn.	185	13.1.34	1,700	— 437	28	48,356	52,967	— 4,611	—	—	—	—	—
	Do. Western Extn.	211	13.1.34	2,275	+ 940	28	42,028	39,743	+ 2,285	—	—	—	—	—
	Cordoba Central	1,218	13.1.34	41,000	—	28	1,216,000	1,229,000	— 13,000	Ord. Inc.	9¼	2½	6	Nil
	Costa Rica	188	Nov., 1933	18,534	— 3,195	21	99,724	107,788	— 8,064	Stk.	29	20	25	8
	Dorada	70	Dec., 1933	11,000	+ 2,600	52	96,800	83,600	+ 13,200	1 Mt. Db.	76½	68¾	80§	7½
	Entre Rios	810	13.1.34	20,500	+ 6,300	28	439,100	455,900	— 16,800	Ord. Stk.	26½	9	17½	Nil
	Great Western of Brazil	1,072	13.1.34	12,300	— 5,200	2	20,700	32,800	— 12,100	Ord. Sh.	23/6	½	¾	NE
	International of Cl. Amer.	794	Nov., 1933	347,691	— 91,368	47	4,125,768	4,581,088	— 455,320	—	—	—	—	—
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	1/2	1/16	1/2	Nil
	La Guaira & Caracas	22¾	Dec., 1933	3,400	— 4,280	52	55,670	87,795	— 32,125	Stk.	16	10	12½	Nil
	Leopoldina	1,918	13.1.34	17,166	— 7,031	2	30,311	44,978	— 14,667	Ord. Stk.	20¼	10	12½	Nil
	Mexican	483	7.1.34	$156,600	+ $4,300	1	$156,600	$152,300	+ $4,300	,,	3	½	2½	Nil
	Midland of Uruguay	319	Dec., 1933	11,542	+ 2,105	26	57,230	52,204	+ 5,026	Ord. Stk.	2	1	2	Nil
	Nitrate	407	15.1.34	15,955	+ 13,575	2	15,955	2,380	+ 13,575	Ord. Sh.	7/6	11/16	3/8	Nil
	Paraguay Central	274	13.1.34	3,100	+ 1,220	28	91,720	78,880	+ 12,840	Pr. Li. Stk.	72	49½	67§	815/16
	Peruvian Corporation	1,059	Dec., 1933	54,751	+ 7,517	26	329,691	345,773	— 16,082	Pref.	15¼	5	10	Nil
	Salvador	100	6.1.34	1,116	— 1,884	28	26,142	52,655	— 26,513	Pr. Li. Db.	70	66½	70	7½
	San Paulo	1531/2	7.1.34	26,867	— 12,600	1	26,867	39,467	— 12,600	Ord. Stk.	102	68	84½	2/8
	Taltal	164	Dec., 1933	8,915	+ 7,855	26	31,065	8,115	+ 22,950	Ord. Sh.	1¾	¾	1/8	6/16
	United of Havana	1,367	13.1.34	13,959	+ 1,524	28	369,263	400,612	— 31,349	Ord. Stk.	8	2	4½	Nil
	Uruguay Northern	73	Dec., 1933	1,298	— 706	26	7,383	9,915	— 2,532	Deb. Stk.	6	3½	5	Nil
Canada.	Canadian National	23,758	7.1.34	471,938	+ 71,936	1	471,938	400,002	+ 71,936	—	—	—	—	—
	Canadian Northern	—	—	—	—	—	—	—	—4 p.c.	Perp. Dbs.	60½	38	58½	613/16
	Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gar.	99¾	85	99½	4
	Canadian Pacific	17,024	7.1.34	379,600	+ 60,000	1	379,600	319,600	+ 60,000	Ord. Stk.	22⅛	11	16	Nil
India.†	Assam Bengal	1,329	16.12.33	23,527	— 1,556	37	865,465	890,352	— 24,887	Ord. Stk.	79	70	73½	4/16
	Barsi Light	202	23.12.33	2,467	— 450	38	111,135	99,007	+ 12,128	Ord. Sh.	10¼	70	98½	6/16
	Bengal & North Western	2,113	23.12.33	52,798	+ 3,957	12	559,845	523,807	+ 36,038	Ord. Stk.	292	240	295	5/16
	Bengal Dooars & Extension	161	23.12.33	2,787	— 115	38	113,887	116,416	— 2,529	,,	127	119	125	5/8
	Bengal-Nagpur	3,269	9.12.33	110,625	+ 9,380	36	3,623,484	3,446,618	+ 176,866	,,	97¼	83½	97½	4/8
	Bombay, Baroda & C. India	3,089	6.1.34	172,050	+ 11,625	40	5,817,075	5,677,050	+ 140,025	,,	112	107	110½	5/16
	Madras & South'n Mahratta	3,230	23.12.33	108,075	— 12,866	38	4,097,982	3,907,280	+ 190,702	,,	127	114¼	122½	7/16
	Rohilkund & Kumaon	546	23.12.33	9,910	+ 289	12	98,084	90,433	+ 7,651	,,	260	225	260	5/4
	South India	2,526	23.12.33	73,376	— 7,302	38	2,991,036	3,041,499	— 50,463	,,	119½	112	116½	6/8
Various.	Beira-Umtali	204	Nov., 1933	49,677	+ 11,566	8	99,606	80,652	+ 18,954	—	—	—	—	—
	Bilbao River & Cantabrian	15	Dec., 1933	988	+ 48	52	18,980	21,553	— 2,573	—	—	—	—	—
	Egyptian Delta	621	31.12.33	8,847	— 1,936	39	177,088	197,955	— 20,867	Prf. Sh.	131/32	1¾	2	Nil
	Great Southern of Spain	104	6.1.34	2,288	+ 628	1	2,288	1,660	+ 628	Inc. Deb.	4	3	5½	Nil
	Kenya & Uganda	1,625	Aug., 1933	159,746	+ 12,456	35	1,523,550	1,273,216	+ 250,334	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	B. Deb.	53	33½	36½	9/16
	Mashonaland	913	Nov., 1933	91,764	+ 30,921	8	186,337	122,843	+ 63,494	1 Mg. Db.	9¼	42	93	5/8
	Midland of W. Australia	277	Nov., 1933	12,568	— 412	21	65,111	61,532	+ 3,579	Inc. Deb.	89	70	91½	4/8
	Nigerian	1,903	2.12.33	50,823	— 14,630	36	952,515	1,047,232	— 94,717	—	—	—	—	—
	Rhodesia	1,538	Nov., 1933	156,230	+ 50,618	8	316,792	213,960	+ 102,832	4 p.c. Db.	98½	80¾	98½	4/16
	South African	13,151	16.12.33	521,254	+ 84,106	38	16,784,729	14,473,560	+2,311,169	—	—	—	—	—
	Victorian	6,172	Oct., 1933	762,659	— 44,068	17	2,797,539	2,885,003	— 87,464	—	—	—	—	—
	Zafra & Huelva	112	Nov., 1933	10,926	+ 149	47	123,826	120,955	+ 2,871	—	—	—	—	—

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1/16.

† Receipts are calculated @ 1s. 6d. to the rupee. § ex dividend. ‡ Average rate of exchange for the week:—This year 32.21/64. Last year 42.5/64.

Yield % (See Note.)
Nil
Nil
8
Nil
$4\frac{5}{16}$
Nil
Nil
Nil
Nil
Nil
Nil
Nil
—
—
Nil
8
$7\frac{1}{2}$
Nil
Nil
—
Nil
Nil
Nil
Nil
Nil
Nil
$8\frac{15}{16}$
Nil
$7\frac{1}{8}$
$2\frac{5}{8}$
$6\frac{5}{16}$
Nil
Nil
—
$6\frac{15}{16}$
4
Nil
$4\frac{1}{16}$
$6\frac{1}{16}$
$5\frac{7}{16}$
$5\frac{5}{8}$
$4\frac{1}{8}$
$5\frac{7}{16}$
$7\frac{5}{16}$
$5\frac{1}{4}$
$6\frac{7}{8}$
—
—
Nil
Nil
—
$9\frac{9}{16}$
$5\frac{5}{8}$
$4\frac{5}{8}$
—
$4\frac{1}{16}$
—
—
—